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ABSTRACT

The "General Mathematics" series contains six modules, intended to help students become more competent with basic mathematics. The Measurements module is designed to allow students to build or increase their level of understanding of measurements. The module helps students develop those skills necessary to successfully understand and use basic measurement skills that are necessary for many vocational jobs and that act as a basis for additional principles. Units include: (1) "Linear Measurement"; (2) "Units of Measure"; (3) "Figuring Board Feet"; and (4) "Reviewing Measurements." The format of each unit includes basic components that form a unit of instruction: performance objectives, suggested activities for the instructor, information sheets, tests, answers to tests, and assignment sheets. Depending on specific objectives, there may or may not be transparency masters, assignment sheets, and job sheets included in the unit of instruction. (YP)

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MATHEMATICS SERIES
Principles, Concepts and Applications

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MEASUREMENTS

SE 050 333

MEASUREMENTS

Developed by the
Oklahoma State Board of Vocational and Technical Education
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MEASUREMENTS

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FOREWORD

The *General Mathematics* series is intended to help students become more competent with basic mathematics. The student will be introduced to the basic mathematic principles and concepts as well as have the opportunity to apply those principles and concepts. The series contains six (6) modules ranging from Whole Numbers to Measurement to Consumer Math (which includes managing income and basic microcomputer awareness). Each module takes the students through the important areas within the subject matter to ensure a basic working knowledge and skills.

The *Measurements* module will allow students to build or increase their level of understanding of measurements. This module helps students develop those skills necessary to successfully understand and use basic measurement skills that are necessary for many vocational jobs and that act as a basis for additional principles.

Dr. Roy Peters, Jr., Director
State Department of Vocational
and Technical Education

ACKNOWLEDGEMENTS

The development of the *General Mathematics: Measurements* is credited to the staff of the Oklahoma State Department of Vocational and Technical Education (SDVTE) and various individuals.

A very special thanks goes out to the staff members of the Curriculum and Instructional Materials Center (CIMC). Sheila Stone, Coordinator of Curriculum Development, provided the support and encouragement necessary to successfully develop the series. Dr. Clyde Matthews, past Coordinator of Special Programs, gave his support during the production, and Billie Frazier, Vocational Specialist, provided assistance during the committee conference.

Special thanks goes to the committee members:

Dirk Allen — Harrah High School
Jan Bull — Mangum High School
Kathy Cloud — Rush Springs High School
Margaret Spann — Lindsey High School
Tod Williams — Newcastle High School

A very special thank-you also goes to Dirk Allen's students for developing many of the games used throughout the series.

The CIMC would also like to extend a great appreciation to Kaye White, Technical Writer, for her assistance in developing the *Measurements* module.

Throughout the development process, the communications center played an important part. Therefore, a special appreciation is extended to Debbie Hixson, Manager, and typsists Rose Primeaux and Lisa Tomlinson.

Terrell B. Ogilvie
Technical Writer
Curriculum and Instructional
Materials Center

OTHER MODULES IN THE *GENERAL MATHEMATICS* SERIES

WHOLE NUMBERS

DECIMALS AND PERCENTS

FRACTIONS

GEOMETRY

CONSUMER MATH

USE OF THIS PUBLICATION

Instructional Units

Measurements includes four instructional units. A standard format was established in 1970 for development of instructional materials for all Oklahoma vocational teachers. This format includes eight basic components that form a unit of instruction: performance, objectives, suggested activities for the instructor, information sheets, assignment sheets, job sheets, transparency masters, tests, and answers to tests and assignment sheets. Depending on specific objectives, there may or may not be transparency masters, assignment sheets, and job sheets included in the unit of instruction.

All of the unit components "zero in" on measurable and observable learning outcomes. Instructors are encouraged to supplement, personalize, localize, and motivate with these materials in order to develop a complete teaching/learning process.

Units of instruction are designed for use in more than one lesson or class period of instruction. Careful study of each unit of instruction by the instructor will help him or her determine the following

A. Amount of material that can be covered in each class period
B. Skills that must be demonstrated
    1. Supplies and equipment needed
    2. Amount of practice needed
    3. Amount of class time needed for demonstrations
C. Supplementary materials, such as pamphlets and filmstrips, that must be ordered
D. Resource people who must be contacted

Performance Objectives (white pages)

Each unit of instruction is based on the performance needed for successful employment in an occupational area. Performance objectives are stated in two forms: unit objectives, stating the subject matter to be covered in a unit of instruction; and specific objectives, stating the performance necessary to reach the unit objective.

Since the objectives of the unit provide direction for the teaching/learning process, it is important that instructors and students have a common understanding of the intent of the objectives. Following is a list of performance terms, their meanings, and behavioral synonyms that may have been used in this material.

A. Name — The individual supplies a name for objects, events, or people

    Behavioral synonyms: Label, list, letter, record, reiterate, repeat, write

B. Identify — The individual selects a named, described, or pictured object by pointing to it, touching it, picking it up, or selecting it

    Behavioral synonyms: Select, mark, match, choose, judge

C. State a rule — The individual communicates a relationship or principle that could be used to solve problems or perform a task

D. Apply a rule — The individual supplies an answer to a problem by using a stated relationship or principle

   Behavioral synonyms: Solve, calculate

E. Describe — The individual relates sufficient characteristics or properties of an object or event so that a second individual will be able to state what is being discussed

   Behavioral synonyms: Define, discuss, interpret, recite, tell how, tell what happens when

F. Distinguish — The individual selects an object or event from two or more that are easily confused

   Behavioral synonyms: Discriminate, differentiate

G. Order — The individual arranges three or more objects or events in a sequence based on a stated property

   Behavioral synonyms: Arrange, sequence, list in order, classify, divide, isolate, sort

H. Construct — The individual makes a physical object, a verbal statement, or a drawing

   (NOTE: *Construct* is used when the finished product or result is important.)

   Behavioral synonyms: Draw, make, build, design, formulate, reproduce, transcribe, convert, put together, compile

I. Demonstrate — The individual performs several operations necessary to carry out a specified process

   (NOTE: *Demonstrate* is used when it is desirable to watch the student perform a task, one of the highest levels of student performance.)

   Behavioral synonyms: Show your work, show procedure, perform an experiment, perform the steps, operate, remove, replace, turn off/on, (dis)assemble, (dis)connect

The objectives should be provided for students and stressed throughout the teaching/learning process. This will help answer any questions concerning performance requirements for each instructional unit. The objectives can also help determine teaching strategies and instructional methods. Prepare for each unit by deciding how each objective can best be taught.

The objective sheet may also be used as a quick pretest to determine prior knowledge of students and to determine whether further study or activities are necessary. Instructors should feel free to modify, delete, or add objectives in order to meet the needs of the students and community. When changes in objectives are made, the instructor should remember to supply the needed information, assignment and/or job sheets, and criterion test items.

Suggested Activities (pink pages)

This component is included only in instructor material. The suggested activities page assists the instructor during the preparation stage of the teaching/learning process by providing suggestions for delivery and/or presentation during the instructional process. Read the suggested activities before teaching the units to allow time to obtain supplemental materials, prepare audio-visual materials, and contact outside resources. Duties of the instructor will vary according to the particular unit.

The references that are listed are ones used in the development of each unit. They should be used by the instructor to supplement her or his knowledge of the subject area or to help students with particular interests or occupational objectives in the area covered.

Supplements (white pages)

Supplements are additional teaching aids that support portions of the Information Sheet. Supplements include such activities as games, puzzles and additional information (which is intended to be used as the instructor deems necessary.)

Supplements may be photo-copied for classroom use only.

Transparency Masters (white pages)

Transparency master provide information in a special way. Transparencies direct the class' attention to the topic of discussion. Transparencies may present new information, or they may reinforce information presented in the information sheet. They are particularly effective when identification is necessary. Make transparencies and place them in the notebook where they will be immediately available for use.

Information Sheet (green pages)

The information sheet provides "must know" content essential for meeting the cognitive (knowledge level) objectives of the unit. The information is written in a topical outline form and is keyed to the specific objectives.

Instructors will find that the information sheet serves as an excellent guide for presenting background knowledge necessary to develop the skills specified in the unit objective. The information sheet may also be used for coordination activities and advisory committees.

Students should read the information sheet before the information is discussed in class. Space is provided in margins for students and instructors to add notes that supplement, localize, personalize, or provide motivation for each unit.

Assignment Sheets (brown pages)

Assignment sheets give students a chance at problem solving, self-assessment, and/or practical experience with the information. They assist students in the application of knowledges that are necessary prerequisites to skill development. These may be given to the student for completion in class or used for homework assignments. Answer sheets are provided when appropriate and can be used by the student and/or instructor for checking student progress.

Job Sheets (blue pages)

Job sheets are another important segment of a unit of instruction. The job sheets provide a list of equipment, tools, and materials needed to complete a manipulative or psychomotor skill. They describe a step-by-step procedure needed to complete each task or job. Diagrams, photographs, and illustrations are provided to assist students in achieving the skill.

Instructor should demonstrate to students the procedure outlined in each job sheet. Furthermore, the instructor needs to localize the job sheet according to the equipment and supplies available in the local lab or shop situation. Job sheets also furnish potential employers with a picture of the skills being taught and the performances they might reasonably expect from a person who has had this vocational instruction.

Tests (White pages)

This component provides criterion-referenced evaluation of every objective listed in the unit of instruction. It is crucial to note that both paper/pencil and performance objectives must be evaluated.

The tests may be written or oral. It is recommended that the tests be divided into shorter tests covering three or four objectives at a time and given soon after those objectives have been covered. A selection of questions from the units covered may be used for final tests at the end of each term if desired. If objectives have been added, deleted, or modified, be sure to make the changes on the test.

The acceptable response on a unit test, 85 percent in most units, may be raised or lowered to fit the topic or students' ability levels. The percentage applies to the overall score, not to each individual question. The final unit grade should be obtained by using the paper/pencil score along with evaluations of students demonstrations of the desired skills.

The tests are in the instructor's book only, but may be photo-copied for classroom use only.

Answers to Test and Assignment Sheets (pink pages)

These components are designed to assist the instructor in evaluation of student performances.

Teaching Methods

It is a challenge to keep students motivated. Supplement the objectives by providing the "why," personal experiences, and current information. Prepare for each unit by deciding how each objective can best be taught. Allow students to become involved in preparing and planning.

Corrections and Suggestions

The Curriculum and Instructional Materials Center wants to provide vocational instructors and students with materials that are accurate and effective. Although the Center strives to maintain the highest standards of development and production, oversights occasionally do occur. If you find any errors in this or other CIMC publications, or have suggestions for improving their usefulness in vocational programs, please notify the CIMC staff. One easy way of pointing out errors is to make a photocopy of the affected pages and to indicate the correction on the copy. You can then mail the information to the CIMC, where it will be used to correct the publication before the materials are reprinted.

To ensure that the material is updated on a timely basis, it is important that you notify the Center of necessary corrections as soon as possible after discovering the error. Do not assume that someone else will notice the error and inform the CIMC; other users may be making the same assumption. Please send corrections and recommendations for improving this publication to the following address:

Curriculum and Instructional Materials Center
Oklahoma State Department of Vocational and
Technical Education
1500 W. Seventh Avenue
Stillwater, Oklahoma 74074

LINEAR MEASUREMENT
UNIT I

UNIT OBJECTIVE

After completing this unit, the student should be able to classify 1/8 inch and 1/16 inch scale rulers and demonstrate the ability to read rules and tapes to 16ths scale. This knowledge should be evidenced through demonstration and by scoring 85 percent on the unit test.

SPECIFIC OBJECTIVES

After completing this unit, the student should be able to

1. Classify given rulers as 1/8 inch scale or 1/16 inch scale.
2. Demonstrate the ability to
   a. Read a ruler when given a drawing of the ruler and the different locations on the ruler.
   b. Read a ruler and measure objects using the proper scale.
   c. Draw lines and objects to the proper dimensions.
   d. Perform the steps for locating the mid-point of an object.

LINEAR MEASUREMENT
UNIT I

SUGGESTED ACTIVITIES

I. Unit contents

- A. Objective sheet
- B. Suggested activities
- C. Pretest
- D. Answers to pretest
- E. Information sheets
- F. Assignment sheets
  1. Assignment Sheet #1 — One, One-Half, One-Fourth Inch Rulers
  2. Assignment Sheet #2 — One-Fourth and One-Eighth Inch Rulers
  3. Assignment Sheet #3 — Reading One-Eight Scale Ruler
  4. Assignment Sheet #4 — One-Sixteenth Scale Ruler
  5. Assignment Sheet #5 — Reading One-Sixteenth Scale Ruler
  6. Assignment Sheet #6 — Measuring Line Segments
  7. Assignment Sheet #7 — Measuring Objects
  8. Assignment Sheet #8 — Using the Ruler
  9. Assignment Sheet #9 — Drawing Lines and Objects
  10. Assignment Sheet #10 — Finding the Midpoint
- G. Answers to assignment sheets
- H. Test
- I. Answers to test

II. Instructor's guide

- A. Order (or obtain) materials to supplement unit
- B. Give pretest

SUGGESTED ACTIVITIES

C. Critique pretest and go over results in class

(NOTE: Be sure to take up pretests after discussing them in class. Students who score 85 percent or higher on the pretest do not need to study this unit.)

D. Provide students with copies of unit

E. Discuss unit and specific objectives

- Bring various rulers to show the variety of scales that are available.
- Stress the importance of being able to use the various scales efficiently and effectively.
- Give the students examples of how they might need these skills in everyday situations.

F. Discuss information and assignment sheets

1. Discuss how to classify given rulers as 1/8 inch and 1/16 inch scale using Information Sheet, Section I.
   - Have students compare the two rulers to see the difference between them.
2. Demonstrate how to read a ruler when given a drawing of the ruler and the different locations on the ruler; use Information Sheet, Section II-A.
   - Have students complete Assignment Sheets #1 and #2.
   - Go over answers in class.
   - Have students complete Assignment Sheets #3, #4, and #5.
   - Go over answers in class.
3. Demonstrate how to read a ruler and measure objects using the proper scale; use Information Sheet, Section II-B.
   - Have students complete Assignment Sheets #6, #7, and #8. For Assignment Sheet #8, have students work in pairs.
   - Go over answers in class.
4. Demonstrate how to draw lines and objects to the proper dimensions; use Information Sheet, Section II-B.
   - Have students complete Assignment Sheet #9.

SUGGESTED ACTIVITIES

- Go over answers in class.

5. Demonstrate how to find the mid-point of an object using Information Sheet, Section II-B.

   - Have students complete Assignment Sheet #10.

   - Go over answers in class.

G. Give test

H. Critique test and discuss in class

I. Reteach and retest as necessary

III. Unit references

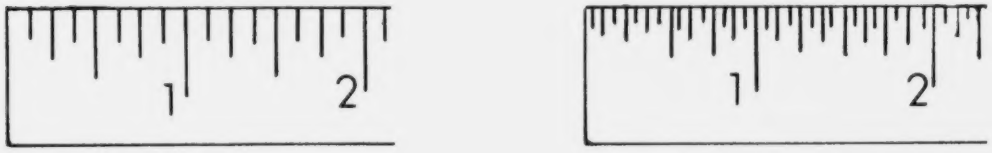
Spann, Margaret. *Related Vocational Math*. Stillwater, Oklahoma: State Department of Vocational and Technical Education/Curriculum and Instructional Materials Center, 1972.

LINEAR MEASUREMENT
UNIT I

PRETEST

NAME _____ SCORE _____

1. Classify the rules below as either 1/16 inch scale or 1/8 inch scale.



a. _____ b. _____

2. From the drawing below, give the reading of the indicated points. Give the answers in lowest terms.

a. _____ b. _____ c. _____

d. _____ e. _____ f. _____

g. _____ h. _____ i. _____

j. _____

3. Use the drawing above to answer the following questions. Give answers in lowest terms.

   a. What is the distance between A and J? _____

   b. What is the distance between H and K? _____

   c. What is the distance between D and F? _____

LINEAR MEASUREMENT
UNIT I

ANSWERS TO PRETEST

1. a. 1/8
   b. 1/16

2. a. 1/16
   b. 1/8
   c. 3/16
   d. 1/4
   e. 5/16
   f. 3/8
   g. 11/16
   h. 1 in.
   i. 1 3/16
   j. 1 11/16

3. a. 1 5/8
   b. 11/16
   c. 1/8

LINEAR MEASUREMENT
UNIT I

INFORMATION SHEET

I. Classification of rulers

A. One-eighth scale — Eight divisions in each inch

B. One-sixteenth scale — Sixteen divisions in each inch

II. Reading a ruler

A. Rules read similarly

(NOTE: Except that some are graduated with more divisions per inch than others.)

B. Procedures for reading

1. Determine size of part by counting divisions in one inch

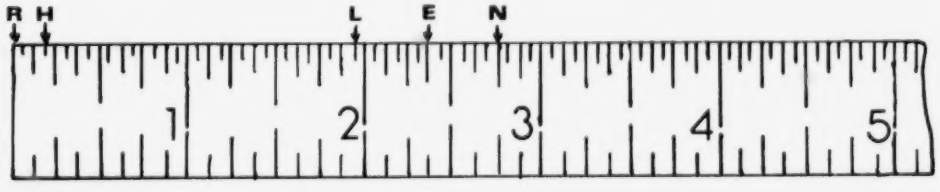
2. Count divisions from last whole inch to the measurement and write this fraction with the whole inch

3. Reduce the answer if possible

4. Use the drawing to find the reading of the indicated point E.

a. First — There are 8 divisions in the first inch, so each division is $\frac{1}{8}$ inch

b. Second — E is 3 spaces beyond 2 inches; therefore, 2 $\frac{3}{8}$ inches is the measurement



5. Use the drawing to find the distance from H to L

a. First — There are 16 divisions in each inch, so each division is $\frac{1}{16}$ inch

INFORMATION SHEET

b. Second — By counting the spaces, there are 28 spaces from H to L which equals $^{28}/_{16}$ inches

Solution 1. $^{28}/_{16} = 1\ ^{12}/_{16} = 1\ ^{3}/_{4}$ inches

Solution 2. H is at $^{3}/_{16}$ inch, L is at $1\ ^{15}/_{16}$ inches $1\ ^{15}/_{16}$ inches $- \ ^{3}/_{16}$ inch $= 1\ ^{12}/_{16}$ inches $= 1\ ^{3}/_{4}$ inches

Solution 3. From H to 1 inch is $^{13}/_{16}$ inch, from 1 inch to L is $^{15}/_{16}$ inch. $^{13}/_{16}$ inch $+ \ ^{15}/_{16}$ inch $= \ ^{28}/_{16}$ inches $= 1\ ^{12}/_{16}$ inches $= 1\ ^{3}/_{4}$ inches

6. Use the drawing to find the mid-point of the distance from R to N

a. The distance from R to N is $2\ ^{3}/_{4}$ inches

b. Take half of this length ($2\ ^{3}/_{4} \times \ ^{1}/_{2} = \ ^{11}/_{4} \times \ ^{1}/_{2} = \ ^{11}/_{8} = 1\ ^{3}/_{8}$)

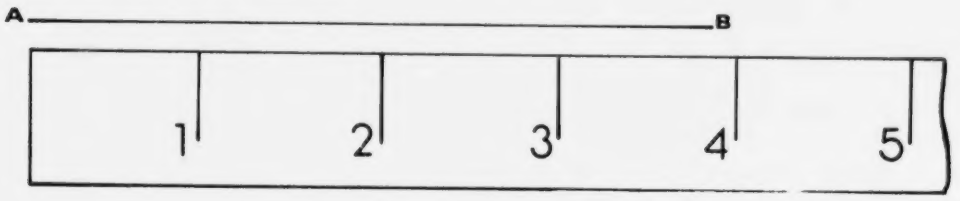
c. The mid-point is $1\ ^{3}/_{8}$ inches from either point

LINEAR MEASUREMENT
UNIT I

ASSIGNMENT SHEET #1 — ONE, ONE-HALF, ONE-FOURTH INCH RULERS

NAME _____ SCORE _____

1. a. Point A, on line segment AB below, is at the end of the ruler. Point B is nearest what number? _____



b. Is AB exactly 4 inches long? _____

c. Is AB exactly 3 inches long? _____

(NOTE: All measurements are approximate.)

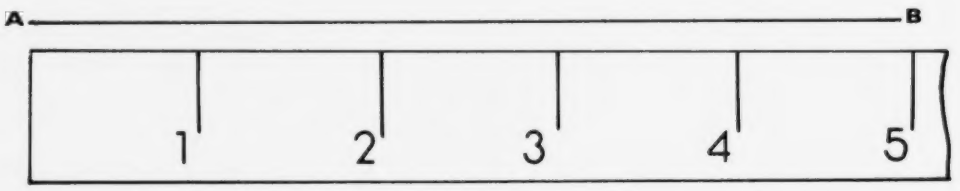
d. AB above is approximately _____ inches in length.

(NOTE: We always measure to the nearest unit marked on the ruler.)

e. All measurements are _____.

f. Is it possible to measure the exact length of a pencil? _____

2. a. Is AB below exactly 5 inches long? _____



b. Is the measure of AB closer to 4 inches or 5 inches? _____

c. Can we ever measure with complete accuracy? _____

d. All measurement is (exact, approximate). Circle the correct word.

ASSIGNMENT SHEET #1

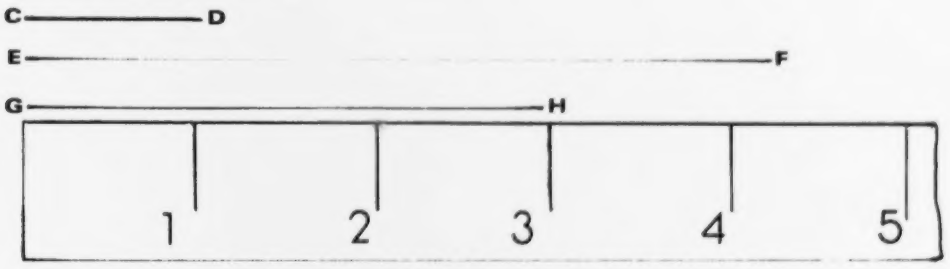
e. We always measure to the _____ _____ marked on the ruler.

3. On the ruler below, give the measure of each line segment to the nearest mark. Label your answers with the correct unit of measure.

a. CD = _____

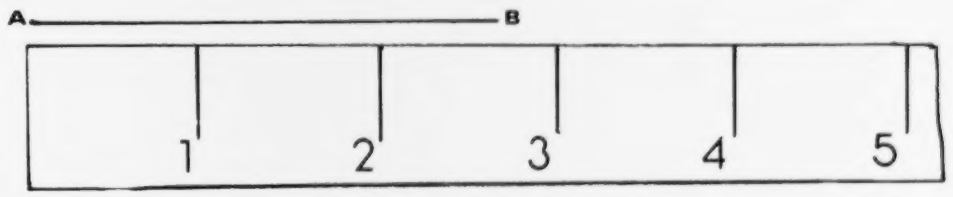
b. EF = _____

c. GH = _____



d. Are the measurements above exact or approximate? _____

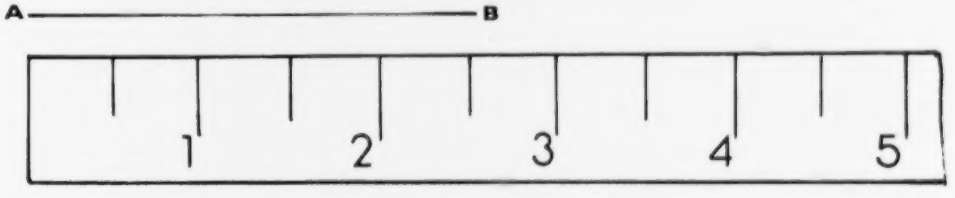
4.



a. Is 3 inches an accurate measure for AB above? _____

b. Could we get a more accurate measure of AB if we divided the inches into smaller units? _____

5. a. Into how many parts has each inch been divided on the ruler below?

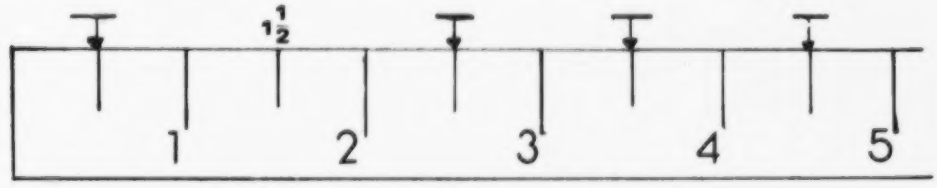


ASSIGNMENT SHEET #1

b. Is B located nearer 2, 2 1/2, or 3 inches? _____

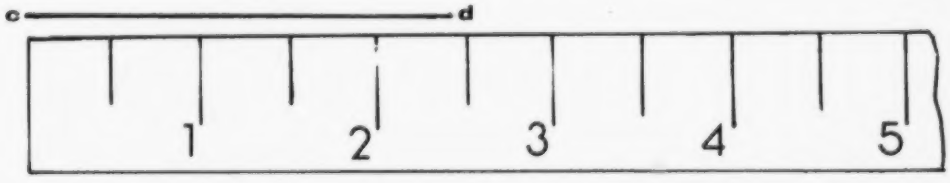
(NOTE: Remember, we always read to the nearest mark on a ruler.)

6. Write in the missing numbers.



7. a. Is point D below nearer 2 or 2 1/2 _____

b. Therefore, using this ruler, the measure of CD is approximately _____ inches.

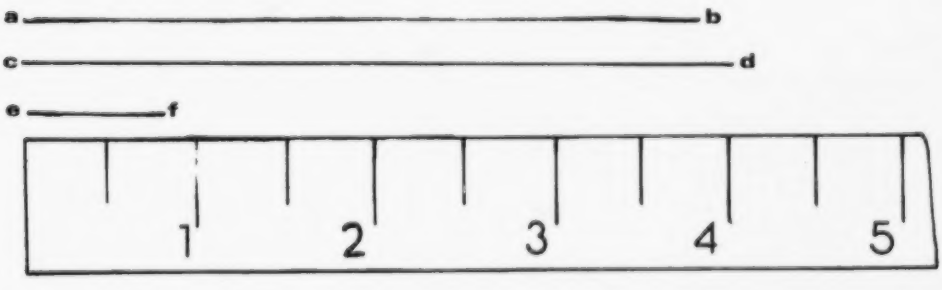


8. To measure a line segment, we line up one of its end points with the end of the ruler. The measure of the segment is the name of the nearest mark at the other end. Give the approximate measure of each segment shown below.

a. AB = _____

b. CD = _____

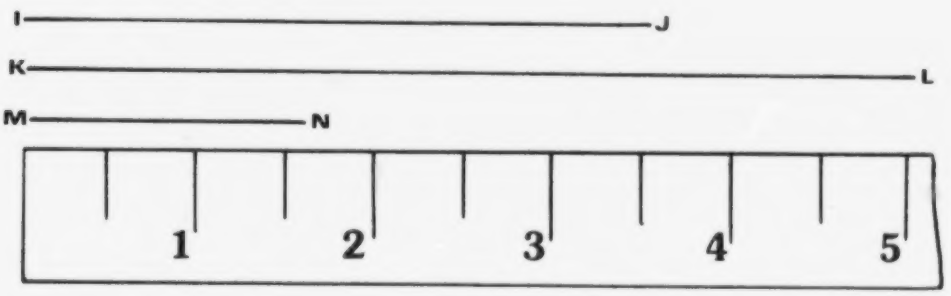
c. EF = _____



d. Although the measures given above are correct, are they exact? _____

ASSIGNMENT SHEET #1

9. Give the measure of each line segment below:



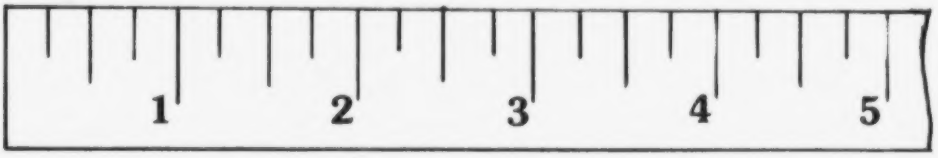
a. IJ = _____

b. KL = _____

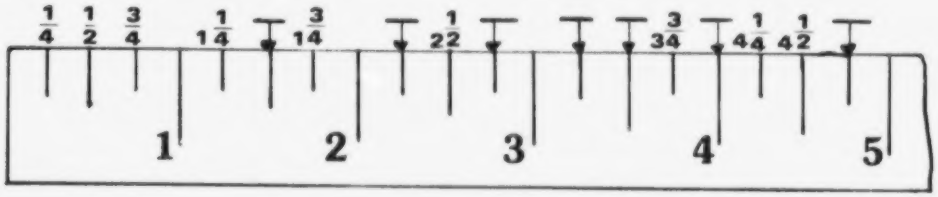
c. MN = _____

10. a. To get a still more accurate measurement, we could divide 1/2-inches into two smaller units. Since 1/2÷2 = 1/4, the new marks would be _____ of an inch apart.

b. Each inch on the ruler below is divided into how many parts? _____



11. Fill in the missing names.



LINEAR MEASUREMENT
UNIT I

ASSIGNMENT SHEET #2 — ONE-FOURTH AND ONE-EIGHTH INCH RULERS

NAME _____ SCORE _____

Measures should be written as whole numbers, if possible. If not possible, we write them as a whole number and a fraction. The fraction should be in lowest terms. For example, 1/2 is preferred rather than 4/8 or 8/16.

1. Circle the preferred name in each of the pairs below.

   a. $5\frac{6}{8}$ or $5\frac{3}{4}$

   b. $\frac{1}{2}$ or $\frac{6}{12}$

   c. $1\frac{8}{16}$ or $1\frac{1}{2}$

   d. $7\frac{4}{16}$ or $7\frac{1}{4}$

   e. $3\frac{2}{8}$ or $3\frac{1}{4}$

2. Write the following measures in simplest form.

   EXAMPLE: $2\frac{10}{16} = 2\frac{5}{8}$

   a. $2\frac{8}{16} =$

   b. $1\frac{6}{8} =$

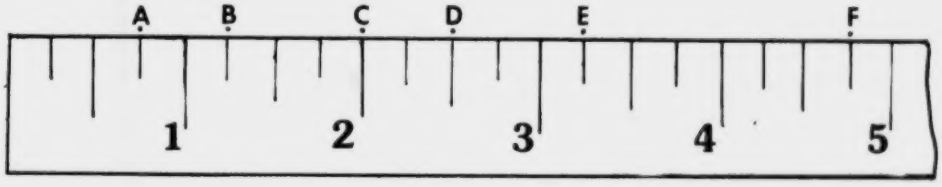
   c. $2\frac{8}{8} =$

   d. $7\frac{14}{16} =$

   e. $3\frac{3}{16} =$

ASSIGNMENT SHEET #2

3. Give the preferred name for each of the points shown below.



a. Point A: _____

b. Point B: _____

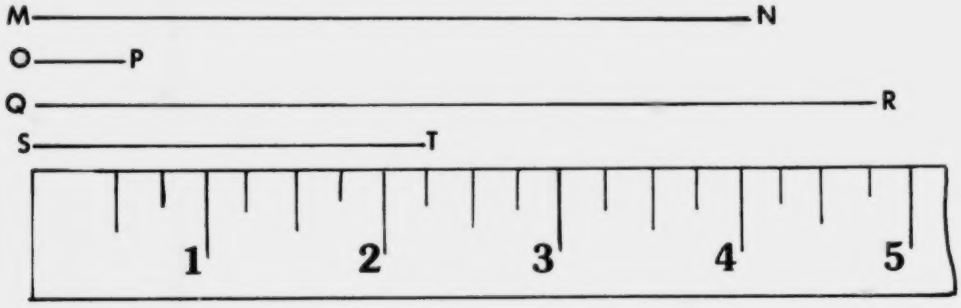
c. Point C: _____

d. Point D: _____

e. Point E: _____

f. Point F: _____

4. Give the measures of these line segments.



a. MN = _____

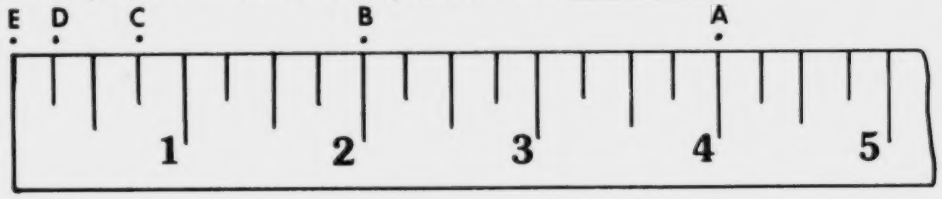
b. OP = _____

c. QR = _____

d. ST = _____

ASSIGNMENT SHEET #2

5. Which point on the ruler below represents zero? _____



6.

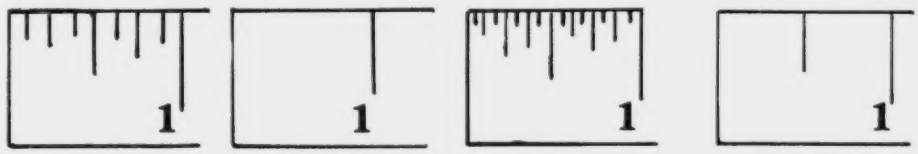


Figure A Figure B Figure C Figure D

a. In Figure A, the inch has been divided into _____ parts.

b. In Figure B, the inch has been divided into _____ parts.

c. In Figure C, the inch has been divided into _____ parts.

d. In Figure D, the inch has been divided into _____ parts.

e. When the inch is divided into two equal parts, each part is called a _____.

f. When the inch is divided into four equal parts, each part is called a _____.

g. There are _____ halves in 1 inch.

h. There are _____ fourths in 1 inch.

7. a. Each inch on the ruler shown below is divided into _____ equal parts.

b. These equal parts are called _____ of an inch.

c. How many eighths are in one inch? _____

ASSIGNMENT SHEET #2

8. Give the reading of these points on the ruler above.

   a. Point C: _____

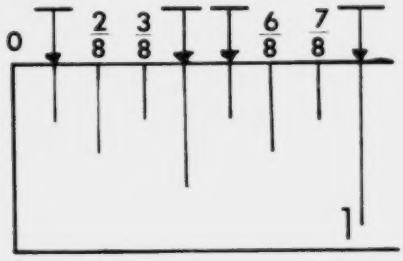
   b. Point D: _____

   c. Point E: _____

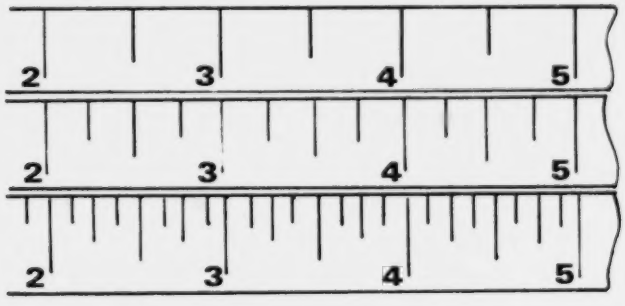
   d. Point F: _____

   e. Point G: _____

9. What fractions are missing? (Write all answers as eighths.)



10. In the figure below are three rulers. One is divided into halves, one into fourths, and the other into eights. Use these to answer the questions below.



   a. $3\frac{1}{2} = 3\frac{\quad}{4} = \frac{1}{8}$

   b. $2\frac{1}{4} = 2\frac{\quad}{8} =$

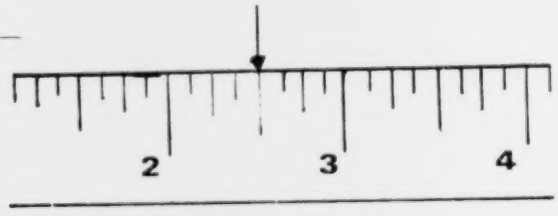
   c. $3\frac{3}{4} = 3\frac{\quad}{8}$

ASSIGNMENT SHEET #2

11. The arrow in the figure below points to a mark that can be read 2 4/8. Give two other names for this point.

a. _____

b. _____

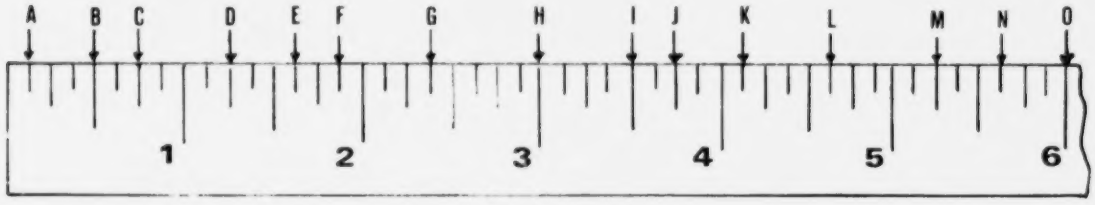


LINEAR MEASUREMENT
UNIT I

ASSIGNMENT SHEET #3 — READING ONE-EIGHTH SCALE RULER

NAME _____ SCORE _____

1. Use the drawing below, and give the reading of the indicated points. Be sure answers are in lowest terms.



a. _____
b. _____
c. _____
d. _____
e. _____
f. _____
g. _____
h. _____
i. _____
j. _____
k. _____
l. _____
m. _____
n. _____
o. _____

2. Use the drawing above to find the distance between the following letters. Give answers in lowest terms.

a. F to H
b. D to E
c. A to C
d. I to J
e. L to O
f. B to I
g. H to K
h. B to C
i. K to L
j. N to O

LINEAR MEASUREMENT
UNIT I

ASSIGNMENT SHEET #4 — ONE-SIXTEENTH SCALE RULER

NAME _____ SCORE _____

1. a. Each inch on the ruler is divided into _____ equal parts.

   b. Each small unit represents what fraction of an inch? _____

   c. How many sixteenths are there in an inch? _____

   d. How far is point A from the zero end of the ruler? _____

   e. How far is point B from the zero end of the ruler? _____

2. a. How many 1/2-inch units are in an inch? _____

   b. How many 1/8-inch units are in an inch? _____

   c. How many 1-inch units are in an inch? _____

   d. How many 1/4-inch units are in an inch? _____

   e. How many 1/16-inch units are in an inch? _____

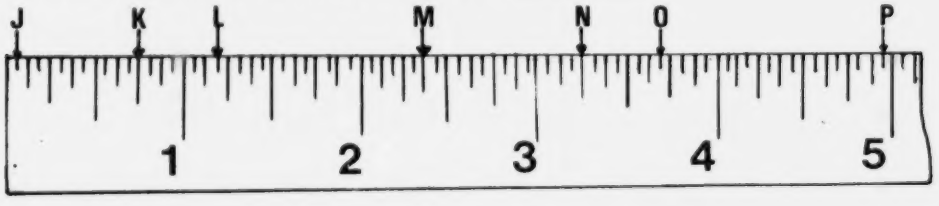
3. a. Each inch on the ruler shown below is divided into _____ equal parts.

   b. Each part is called a _____ of an inch.

   c. There are how many sixteenths in one inch? _____

   d. There are how many sixteenths in one-half inch? _____

   e. How many 1/16-inch units are in an inch? _____



ASSIGNMENT SHEET #4

4. Use the ruler above to answer these questions. Are these measures correct? Answer yes or no for each one.

   a. J: $\frac{1}{16}$ _____

   b. K: $\frac{1}{2}$ _____

   c. L: $1\ \frac{3}{16}$ _____

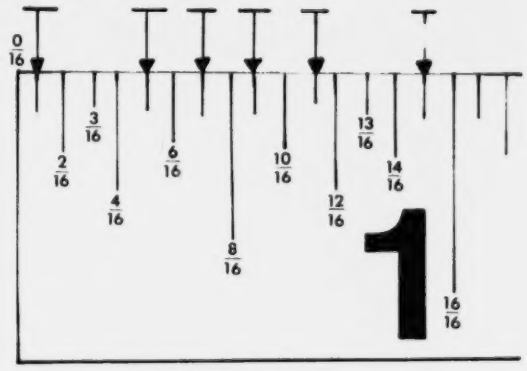
   d. M: $2\ \frac{3}{8}$ _____

   e. N: $3\ \frac{1}{8}$ _____

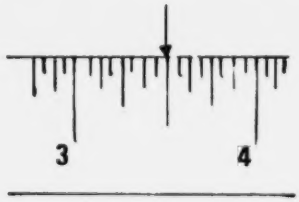
   f. O: $3\ \frac{11}{16}$ _____

   g. P: $4\ \frac{7}{8}$ _____

5. a. Name the missing fractions below:

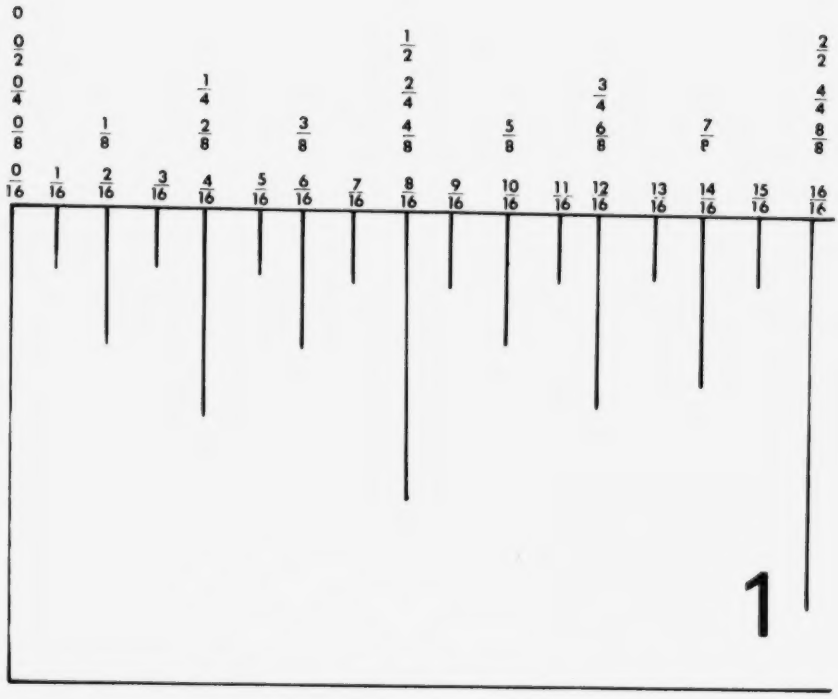


   b. The point marked on the ruler below could be named 3 8/16. It could also be named 3 /8, 3 /4, or 3 /2.



ASSIGNMENT SHEET #4

6. The ruler below shows that $\frac{1}{4}$, $\frac{2}{8}$, and $\frac{4}{16}$ are all names for the same point on the ruler.



a. Another name for $\frac{2}{16}$ is _____.

b. Other names for $\frac{12}{16}$ are _____.

c. Other names for 1 inch are _____.

d. Another name for $\frac{6}{16}$ is _____.

e. The simplest name for $\frac{10}{16}$ is _____.

f. $\frac{12}{16}$ reduced to lowest terms is _____.

g. At the left end of the ruler is the _____ point.

h. Are the fractions, $\frac{1}{16}$, $\frac{3}{16}$, $\frac{5}{16}$, $\frac{7}{16}$, $\frac{9}{16}$, $\frac{11}{16}$, $\frac{13}{16}$, and $\frac{15}{16}$ in simplest form? _____

ASSIGNMENT SHEET #4

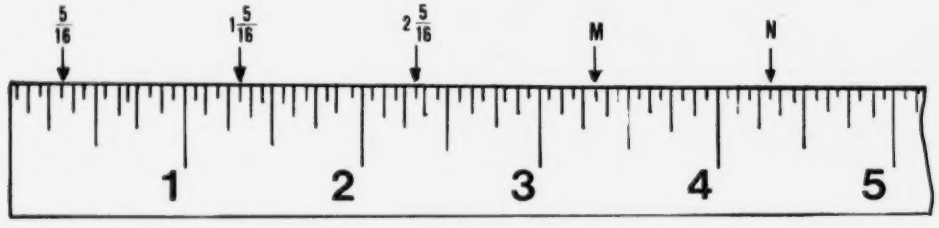
7. a. The ruler below is divided into (16ths, 32nds). Circle the correct answers.

   b. The first five units on this ruler represent $^{5}/_{16}$ of an inch. Five small units to the right of the 1-inch mark is the mark representing 1 $^{\ }/_{16}$ inches.

   c. Five small units to the right of the 2-inch mark is the mark representing 2 $^{\ }/_{16}$ inches.

   d. Give the reading of point M. _____

   e. Give the reading of point N. _____



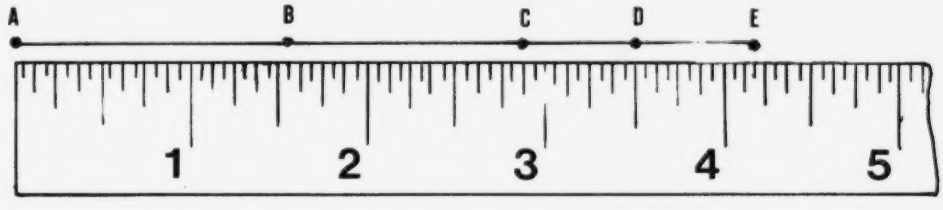
8. What are the measures of the following segments?

   a. AB = _____

   b. AC = _____

   c. AD = _____

   d. AE = _____



ASSIGNMENT SHEET #4

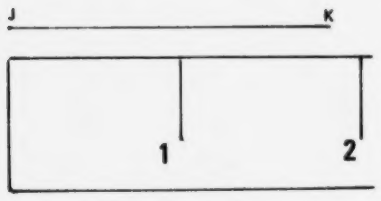


Figure A

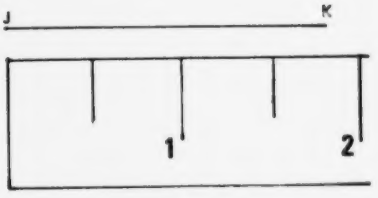


Figure B

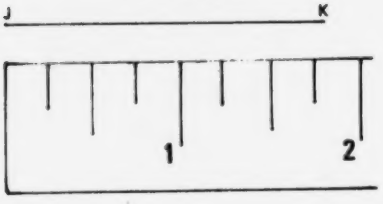


Figure C

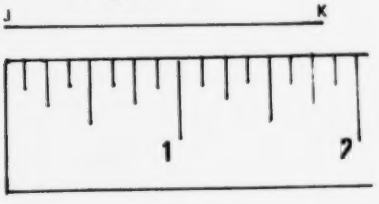


Figure D

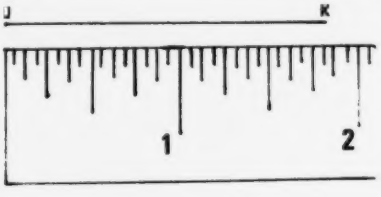


Figure E

9. What is the length of JK in:

   (REMEMBER: Read the ruler to the nearest mark.)

   a. Figure A _____

   b. Figure B _____

   c. Figure C _____

   d. Figure D _____

   e. Figure E _____

   f. Which figure shows the ruler that would give the most accurate measure of JK? _____

ASSIGNMENT SHEET #4

10. Give the measure of each segment shown below.

a. JK = _____

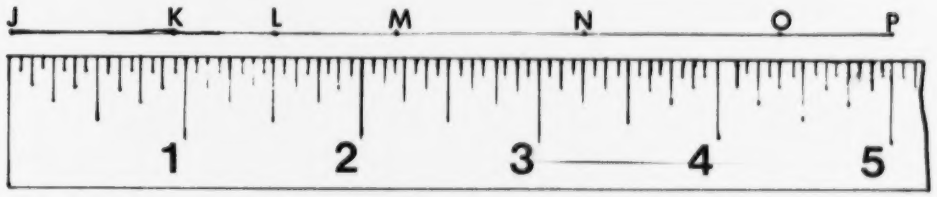
b. JL = _____

c. JM = _____

d. JN = _____

e. JO = _____

f. JP = _____



11. Give the simplest reading for each position of the enlarged ruler shown below:

a. Q: _____

b. R: _____

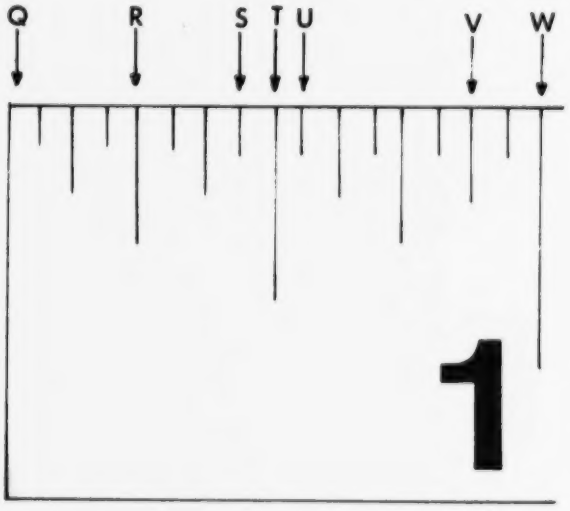
c. S: _____

d. T: _____

e. U: _____

f. V: _____

g. W: _____



ASSIGNMENT SHEET #4

12. Which figure below shows a ruler marked off in

a. Fourths _____

b. Inches _____

c. Eighths _____

d. Halves _____

e. Sixteenths _____

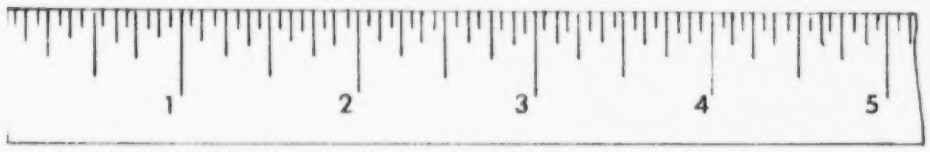


Figure A

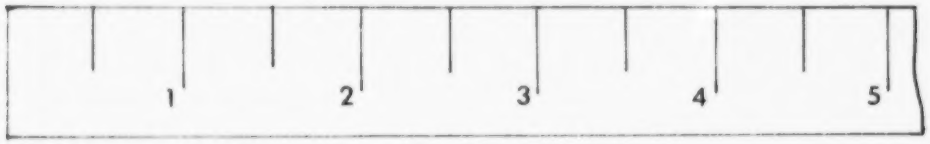


Figure B

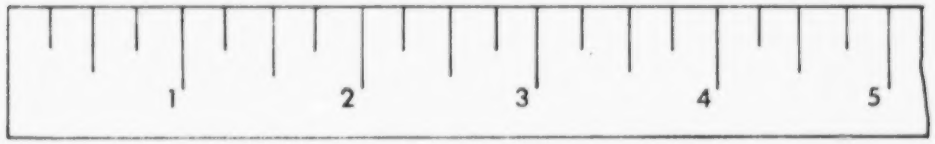


Figure C

Figure D

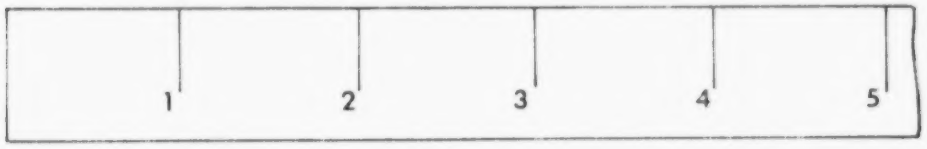


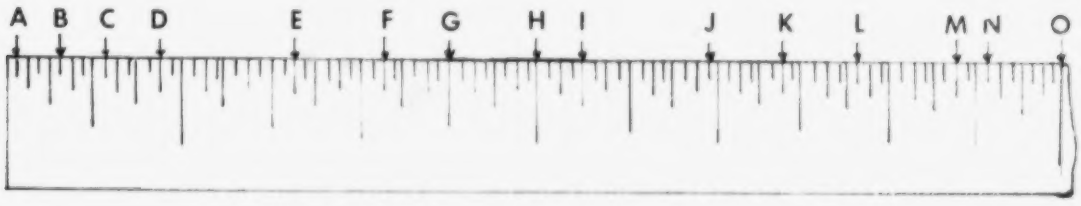
Figure E

LINEAR MEASUREMENT
UNIT I

ASSIGNMENT SHEET #5 — READING ONE-SIXTEENTH SCALE RULER

NAME _____ SCORE _____

1. Use the drawing below and give the reading of the indicated points. Be sure answers are in lowest terms.



a. _____ h. _____

b. _____ i. _____

c. _____ j. _____

d. _____ k. _____

e. _____ l. _____

f. _____ m. _____

g. _____ n. _____

o. _____

2. Use the drawing above to find the distance between the following letters. Give answers in lowest terms.

a. A to D _____ f. N to O _____

b. H to O _____ g. B to C _____

c. D to E _____ h. G to H _____

d. H to I _____ i. E to F _____

e. J to L _____ j. J to N _____

LINEAR MEASUREMENT
UNIT I

ASSIGNMENT SHEET #6 — MEASURING LINE SEGMENTS

NAME _____ SCORE _____

Directions: Using a 1/16 inch scale ruler, measure the following line segments. Write the measure above each segment. State your answer in simplest form.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9.

_____

ASSIGNMENT SHEET #6

10. _____

11. _____

12. _____

LINEAR MEASUREMENT
UNIT I

ASSIGNMENT SHEET #7 — MEASURING OBJECTS

NAME _____ SCORE _____

1. Use your ruler to get the indicated measures in simplest form. In the sketch at the right, find the measures of:

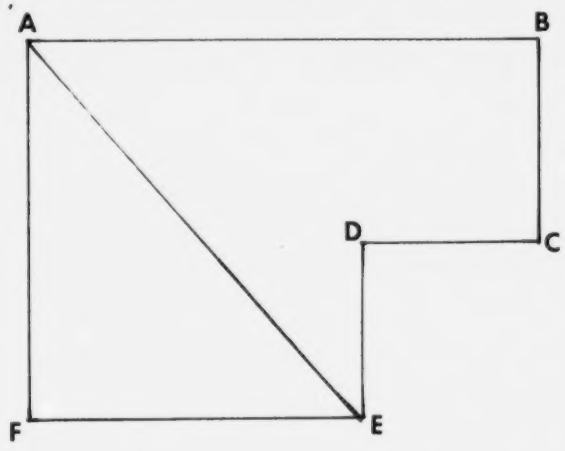
   a. AB = _____

   b. BC = _____

   c. DE = _____

   d. AF = _____

   e. AE = _____



2. In the sketch at the right, find the measures of :

   a. IH = _____

   b. IG = _____

   c. GE = _____

   d. JK = _____

   e. KC = _____

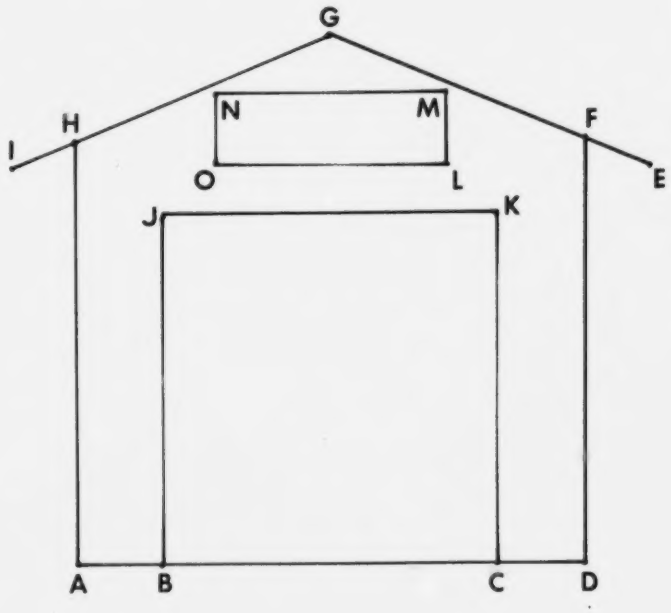
   f. CD = _____

   g. HA = _____

   h. FD = _____

   i. NM = _____

   j. ML = _____



LINEAR MEASUREMENT
UNIT I

ASSIGNMENT SHEET #8 — USING THE RULER

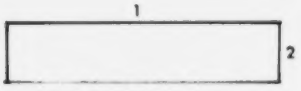
NAME _____ SCORE _____

1. Using a 1/16 inch scale ruler, measure the following objects.

a. _____

b. _____

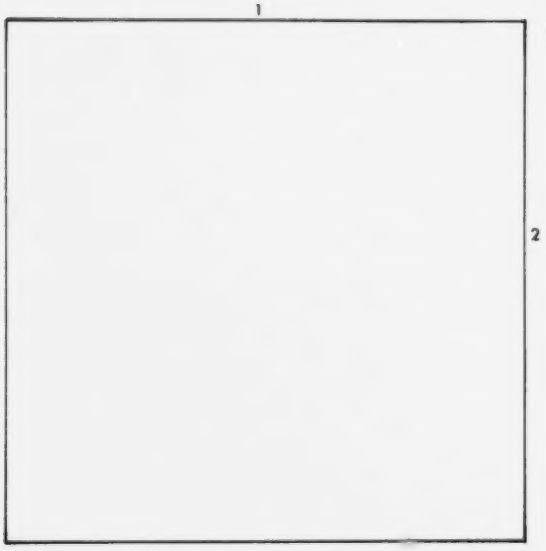
c. _____

d. 

1) _____

2) _____

e. 1) _____



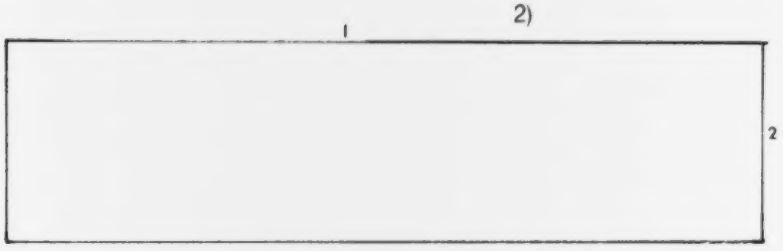
2) _____

ASSIGNMENT SHEET #8

f.

1)

2)

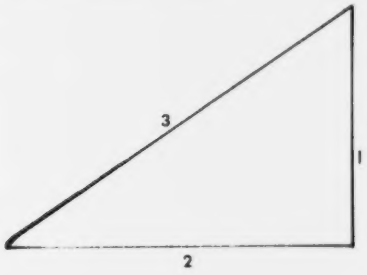


g.

1)

2)

3)

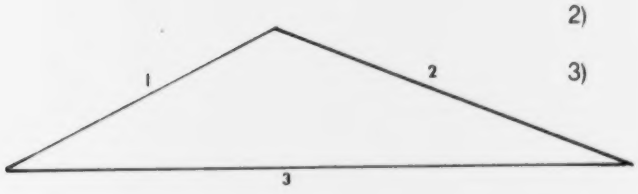


h.

1)

2)

3)

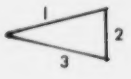


i.

1)

2)

3)



j.

1)

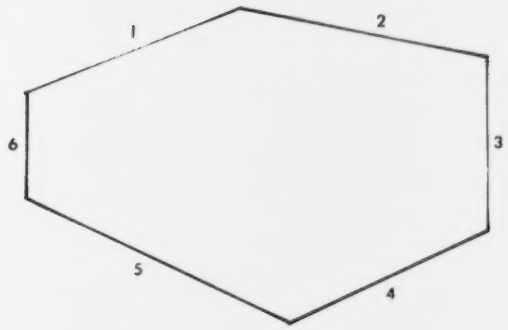
2)

3)

4)

5)

6)



ASSIGNMENT SHEET #8

2. You will measure the objects prepared by your teacher. You will have 30 seconds to measure each object and write the answer before moving to the next one. Give each answer correct to the nearest $1/16$ of an inch.

a. _____

b. _____

c. _____

d. _____

e. _____

f. _____

g. _____

h. _____

i. _____

j. _____

k. _____

l. _____

m. _____

n. _____

o. _____

p. _____

q. _____

r. _____

s. _____

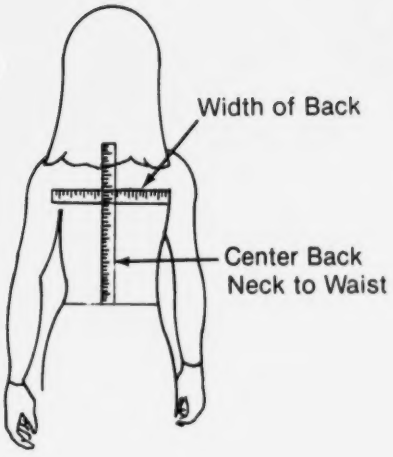
t. _____

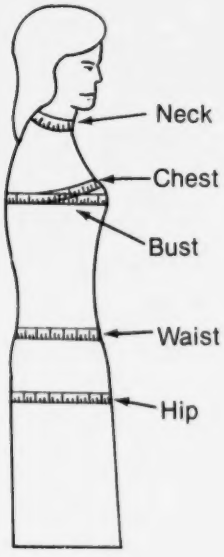
ASSIGNMENT SHEET #8

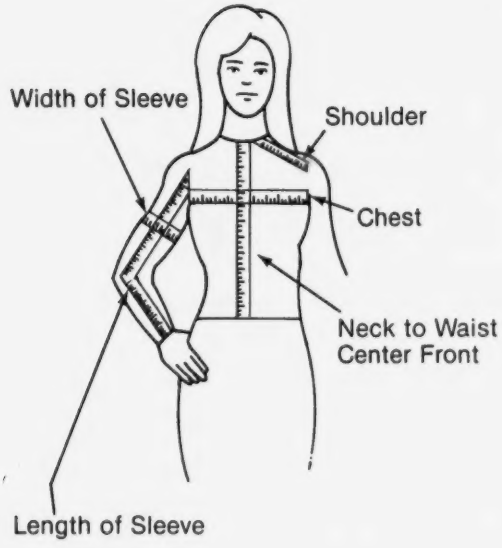
3. Using a tape measure, take the measurements of a fellow student as described in the measurement chart included in this lesson. (For Home and Community Services.)

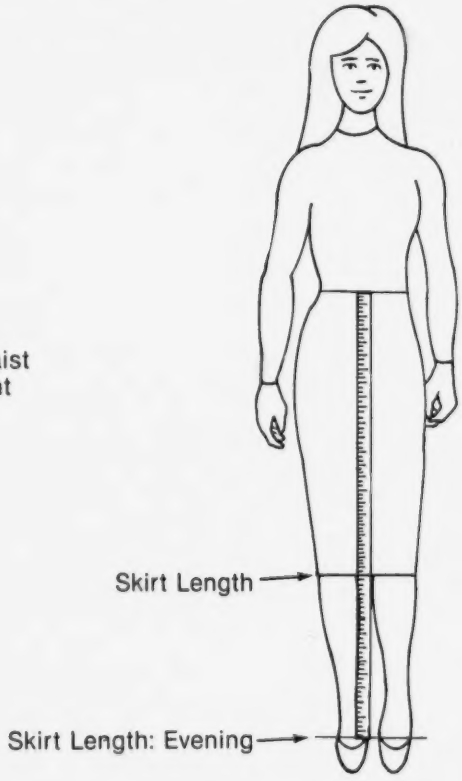
Measurement Chart	My Measurements
BUST (around fullest part)	
WAIST (snug)	
HIP (about 7 inches below waist or fullest part)	
NECK (around base of neck)	
WRIST (not too tight)	
BACK LENGTH TO WAIST (base of neck to waistline)	
FRONT LENGTH TO WAIST (base to neck to waistline)	
SHOULDER (neck to armhole)	
WIDTH OF BACK (armhole to armhole, 4 inches down from shoulder seam)	
WIDTH OF CHEST (armhole to armhole above bust)	
LENGTH OF SLEEVE (top of arm to wrist, arm bent)	
WIDTH OF SLEEVE (around fullest part above elbow)	
BACK SKIRT LENGTH (waist to hem)	
FRONT SKIRT LENGTH (waist to hem)	
INSEAM (pants)	
FINISHED LENGTH (pants)	
HIGH CHEST (around chest just under arms)	
CROTCH LENGTH (waist to chair when seated)	

ASSIGNMENT SHEET #8

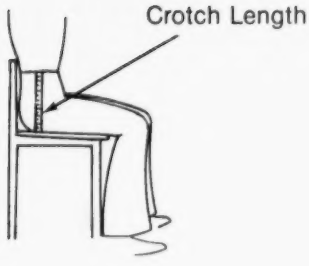


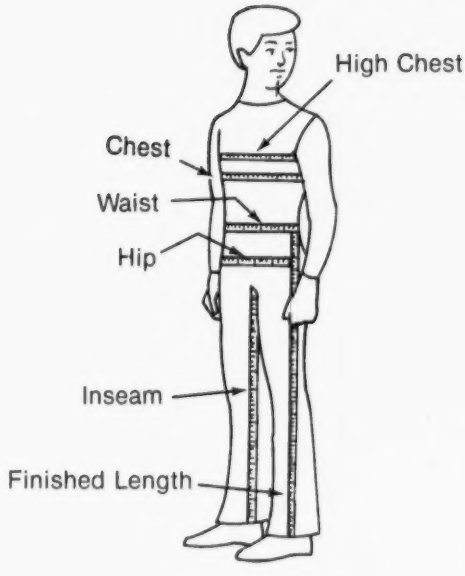






ASSIGNMENT SHEET #8





LINEAR MEASUREMENT
UNIT I

ASSIGNMENT SHEET #9 — DRAWING LINES AND OBJECTS

NAME _____ SCORE _____

1. Draw a straight line segment:
   a. 5 inches long
   b. 3 1/2 inches long
   c. 1 5/8 inches long
   d. 15/16 inches long
   e. 2 3/4 inches long
2. Draw a square with each side 1 1/2 inches.
3. Draw a rectangle with two sides 3 1/4 inches and two sides 1 3/4 inches.
4. Draw a triangle with the base 3 1/8 inches.
5. Draw a triangle with side a = 2 inches and side b = 2 7/16 inches.

LINEAR MEASUREMENT
UNIT I

ASSIGNMENT SHEET #10 — FINDING THE MID-POINT

NAME _____ SCORE _____

1. _____

   a. How long is the line above? _____

   b. $4\frac{5}{8} \times \frac{1}{2} = \frac{37}{8} \times \frac{1}{2} = \frac{37}{16} =$ _____

   c. What is the length of half of the line above? _____

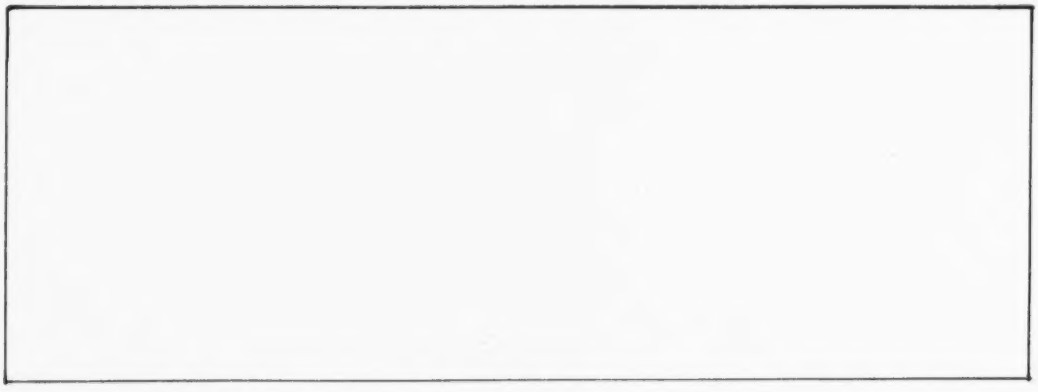
   d. Mark the mid-point of the line. Measure to be sure both parts are the same length.

2.

   a. What is the length of the bar above? _____

   b. What is one-half of the length of the bar? _____

   c. Draw a line showing where the cut would be made to get two pieces each half as long as the original piece.

3. 

   a. How long is the piece of wood above? _____

   b. What is half its length? _____

   c. Draw the cutting line on the figure. (You will need to mark the mid-point on each of the long sides and draw the line connecting these two points.)

ASSIGNMENT SHEET #10

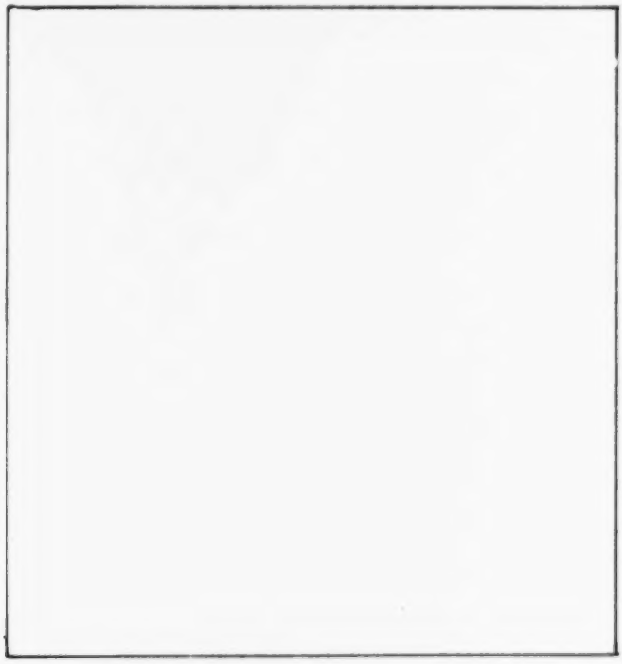
d. How wide is the piece of wood? _____

e. What is half its width? _____

f. Draw the cutting line that would divide the width in half. (Remember to mark the mid-points of both widths and connect these two points.)

g. The point where the two lines cross is the center of the piece of the wood. If you were supposed to drill a hole in the center of the piece of wood above, where would you place the hole? Circle the point on the drawing.

4.



Perform the steps to locate and mark the point where you would drill a hole in the center of this figure.

5.

Mark the cutting line for cutting the length of the bar in half.

LINEAR MEASUREMENT
UNIT I

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

1. a. 4
   b. no
   c. no
   d. 4
   e. approximate
   f. no

2. a. no
   b. 5 inches
   c. no
   d. approximate
   e. nearest unit

3. a. 1 inch
   b. 4 inches
   c. 3 inches
   d. approximate

4. a. no
   b. yes

5. a. 2
   b. 2 1/2 inches

6. 1/2, 2 1/2, 3 1/2, 4 1/2

7. a. 2 1/2
   b. 2 1/2 inches

8. a. 4 inches
   b. 4 inches
   c. 1/2 inch
   d. no

9. a. 3 1/2 inches
   b. 5 inches
   c. 1 1/2 inches

10. a. 1/4
    b. 4

11. 1 1/2, 2 1/4, 2 3/4, 3 1/4, 3 1/2, 4, 4 3/4

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #2

1. a. 5 3/4
   b. 1/2
   c. 1 1/2
   d. 7 1/4
   e. 3 1/4

2. a. 2 1/2
   b. 1 3/4
   c. 3
   d. 7 7/8
   e. 3 3/16 (already in simplest form)

3. a. 3/4 inch
   b. 1 1/4 inches
   c. 2 inches
   d. 2 1/2 inches
   e. 3 1/4 inches
   f. 4 3/4 inches

4. a. 4 inches
   b. 1/2 inch
   c. 4 3/4 inches
   d. 2 1/4 inches

5. e

6. a. 8
   b. 1
   c. 16
   d. 2
   e. half
   f. fourth
   g. 2
   h. 4

7. a. 8
   b. eighths
   c. 8

8. a. 4 7/8
   b. 1/8
   c. 3
   d. 1 1/8
   e. 2 3/8

9. 1/8, 4/8, 5/8, 8/8

ANSWERS TO ASSIGNMENT SHEETS

10. a. 2, 4
    b. 2
    c. 6

11. a. 2 2/4 or 2 1/2
    b. 2 2/4 or 2 1/2

Assignment Sheet #3

1. a. 1/8 inch
   b. 1/2 inch
   c. 3/4 inch
   d. 1 1/4 inches
   e. 1 5/8 inches
   f. 1 7/8 inches
   g. 2 3/8 inches
   h. 3 inches
   i. 3 1/2 inches
   j. 3 3/4 inches
   k. 4 1/8 inches
   l. 4 5/8 inches
   m. 5 1/4 inches
   n. 5 5/8 inches

2. a. 1 1/8 inches
   b. 3/8 inch
   c. 5/8 inch
   d. 1/4 inch
   e. 1 3/4 inches
   f. 3 inches
   g. 1 1/8 inches
   h. 1/4 inch
   i. 1/2 inch
   j. 3/8 inch

Assignment Sheet #4

1. a. 16
   b. 1/16
   c. 16
   d. 1/16 inch
   e. 3 1/16 inches

2. a. 2
   b. 8
   c. 1
   d. 4
   e. 16

3. a. 16
   b. sixteenth
   c. 16
   d. 8

4. a. yes
   b. no
   c. yes
   d. yes
   e. no
   f. yes
   g. no

ANSWERS TO ASSIGNMENT SHEETS

5. a. 1/16, 5/16, 7/16, 9/16, 11/16, 15/16
   b. 4, 2, 1

6. a. 1/8
   b. 3/4 and 6/8
   c. 2/2, 4/4, 8/8, 16/16
   d. 3/8
   e. 5/8
   f. 3/4
   g. zero
   h. yes

7. a. 16ths
   b. 5
   c. 5
   d. 3 5/16 inches
   e. 4 5/16 inches

8. a. 1 9/16 inches
   b. 2 7/8 inches
   c. 3 1/2 inches
   d. 4 3/16 inches

9. a. 2 inches
   b. 2 inches
   c. 1 3/4 inches
   d. 1 7/8 inches
   e. 1 13/16 inches
   f. e

10. a. 15/16
    b. 1 1/2
    c. 2 3/16
    d. 3 1/4
    e. 4 3/8
    f. 5

11. a. 0 inches
    b. 1/4 inch
    c. 7/16 inch
    d. 1/2 inch
    e. 9/16 inch
    f. 7/8 inch
    g. 1 inch

12. a. C
    b. E
    c. D
    d. B
    e. A

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #5

1. a. 1/16 inch
   b. 5/16 inch
   c. 9/16 inch
   d. 7/8 inch
   e. 1 5/8 inches
   f. 2 1/8 inches
   g. 2 1/2 inches
   h. 3 inches
   i. 3 1/4 inches
   j. 3 15/16 inches
   k. 4 3/8 inches
   l. 4 13/16 inches
   m. 5 3/8 inches
   n. 5 9/16 inches

2. a. 13/16 inch
   b. 3 1/16 inches
   c. 3/4 inch
   d. 1/4 inch
   e. 7/8 inch
   f. 7/16 inch
   g. 1/4 inch
   h. 1/2 inch
   i. 1/2 inch
   j. 1 5/8 inches

Assignment Sheet #6

1. 2 1/4 inches
2. 4 13/16 inches
3. 5 1/8 inches
4. 3 1/2 inches
5. 1/2 inch
6. 1 9/16 inches
7. 4 5/8 inches
8. 2 inches
9. 5 7/8 inches
10. 3 inches
11. 1 15/16 inches
12. 4 3/4 inches

Assignment Sheet #7

1. a. 2 15/16 inches
   b. 1 3/16 inches
   c. 1 inch
   d. 2 3/16 inches
   e. 2 13/16 inches

2. a. 3/8 inch
   b. 1 15/16 inches
   c. 1 15/16 inches
   d. 1 15/16 inches
   e. 2 inches
   f. 1/2 inch
   g. 2 7/16 inches
   h. 2 7/16 inches
   i. 1 5/16 inches
   j. 7/16 inch

ANSWERS TO ASSIGNMENT SHEETS

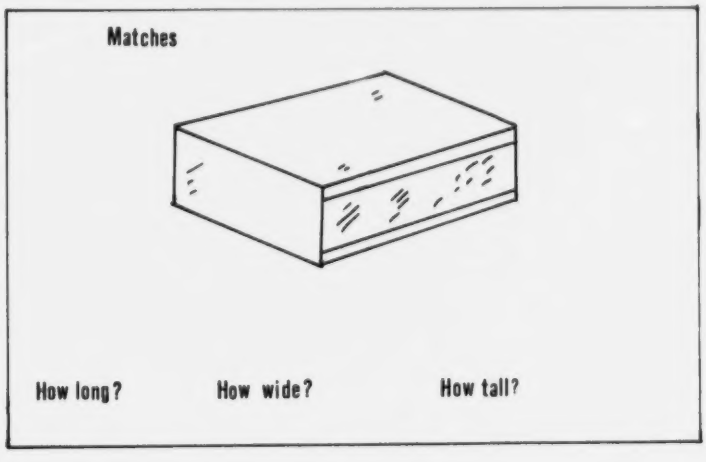
Assignment Sheet #8

1. a. $3\frac{3}{4}$ inches
   b. $\frac{1}{2}$ inch
   c. $2\frac{1}{2}$ inches
   d. 1) $1\frac{9}{16}$ inches
      2) $\frac{3}{8}$ inch
   e. 1) $2\frac{15}{16}$ inches
      2) 3 inches
   f. 1) $4\frac{5}{16}$ inches
      2) $1\frac{3}{16}$ inch
   g. 1) $1\frac{3}{8}$ inches
      2) 2 inches
      3) $2\frac{7}{16}$ inches
   h. 1) $1\frac{3}{4}$ inches
      2) $2\frac{3}{16}$ inch
      3) $3\frac{9}{16}$ inches
   i. 1) $\frac{5}{8}$ inch
      2) $\frac{5}{16}$ inch
      3) $\frac{5}{8}$ inch
   j. 1) $1\frac{5}{16}$ inches
      2) $1\frac{7}{16}$ inches
      3) 1 inch
      4) $1\frac{1}{4}$ inches
      5) $1\frac{11}{16}$ inches
      6) $\frac{5}{8}$ inch

2. Teacher evaluation

   Take a 3 × 5 card and scotch tape an object to be measured to each card. Number each card and label the card with the name of the object.

   EXAMPLE:



ANSWERS TO ASSIGNMENT SHEETS

3. Answers will vary

Assignment Sheet #9 — To be evaluated by the instructor

Assignment Sheet #10

1. a. 4 5/8 inches
   b. 2 5/16 inches
   c. 2 5/16 inches
   d. Teacher evaluation

2. a. 4 3/4 inches
   b. 2 3/8 inches
   c. Teacher evaluation

3. a. 5 7/8 inches
   b. 2 15/16 inches
   c. Teacher evaluation
   d. 2 1/8 inches
   e. 1 1/16 inches
   f. Teacher evaluation
   g. Teacher evaluation

4. Teacher evaluation

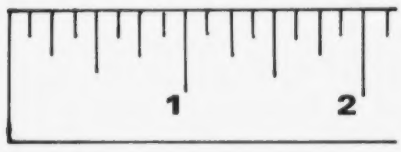
5. Teacher evaluation

LINEAR MEASUREMENT
UNIT I

TEST

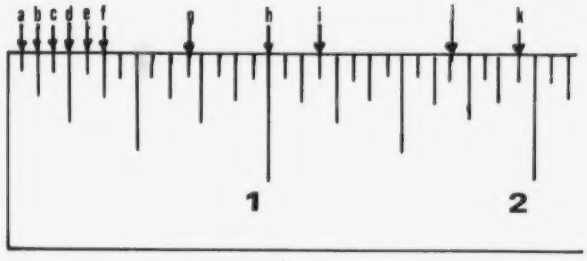
NAME _____ SCORE _____

1. Classify the rules below as either 1/16 inch scale or 1/8 inch scale.



a. _____ b. _____

2. From the drawing below give the reading of the indicated points. Give the answers in lowest terms.



a. _____ f. _____

b. _____ g. _____

c. _____ h. _____

d. _____ i. _____

e. _____ j. _____

3. Use the drawing above to answer the following questions. Give answers in lowest terms.

   a. What is the distance between A and I? _____

   b. What is the distance between H and I? _____

TEST

c. What is the distance between A and F? _____

d. What is the distance between H and K? _____

e. What is the distance between G and J? _____

4. What is the length of each of the following lines.

a. _____

b. _____

c. _____

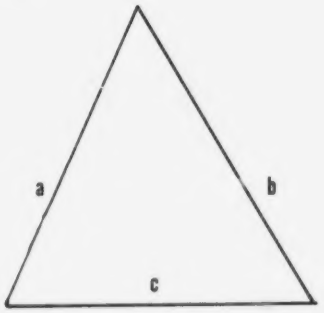
d. _____

5. What are the dimensions of this triangle?

a. _____

b. _____

c. _____



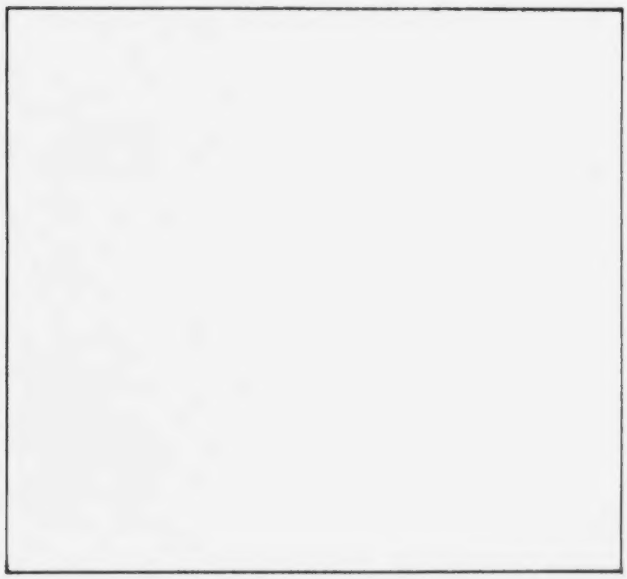
6. Draw a rectangle with two sides 1 1/2 inches and two sides 7/8 inch.

7. a. Perform the steps to locate and mark the mid-point of this line segment.

_____

TEST

b. Perform the steps to locate and mark the point where you would drill a hole in the center of this object.



LINEAR MEASUREMENT
UNIT I

ANSWERS TO TEST

1. a. 1/8 inch
   b. 1/16 inch

2. a. 1/16 inch
   b. 1/8 inch
   c. 3/16 inch
   d. 1/4 inch
   e. 5/16 inch
   f. 3/8 inch
   g. 11/16 inch
   h. 1 inch
   i. 1 3/16 inches
   j. 1 11/16 inches

3. a. 1 1/8
   b. 3/16 inch
   c. 5/16 inch
   d. 15/16 inch
   e. 1 inch

4. a. 2 1/4 inches
   b. 1 1/16 inches
   c. 1 15/16 inches
   d. 3 1/8 inches

5. a. 1 7/8 inches
   b. 2 inches
   c. 1 3/4 inches

6. Evaluation by instructor

7. Evaluation by instructor

UNITS OF MEASURE
UNIT II

UNIT OBJECTIVE

After completing this unit, the student should be able to convert measures to equivalent units of measure and solve problems involving addition and subtraction of measures. This knowledge will be evidenced by scoring 85 percent on the unit test.

SPECIFIC OBJECTIVES

After completing this unit, the student should be able to

1. Demonstrate the ability to convert measures to equivalent units of:
   a. Linear measures.
   b. Liquid measures.
   c. Dry measures.
   d. Weight measures.
   e. Time measures.
2. Solve ten problems involving addition of measures.
3. Solve ten problems involving subtraction of measures.

UNITS OF MEASURE
UNIT II

SUGGESTED ACTIVITIES

I. Unit contents

- A. Objective sheet
- B. Suggested activities
- C. Transparency Master: Time Zones
- D. Pretest
- E. Answers to pretest
- F. Information sheets
- G. Assignment sheets
  1. Assignment Sheet #1 — Using Measures of Length
  2. Assignment Sheet #2 — Using Liquid Measures
  3. Assignment Sheet #3 — Using Dry Measures
  4. Assignment Sheet #4 — Using Measures of Weight
  5. Assignment Sheet #5 — Using Measures of Time
  6. Assignment Sheet #6 — Review of Using Measures
  7. Assignment Sheet #7 — Addition
  8. Assignment Sheet #8 — Subtraction
- H. Answers to assignment sheets
- I. Test
- J. Answers to test

II. Instructor's guide

- A. Order (or obtain) materials to supplement unit
- B. Give pretest
- C. Critique pretest and go over results in class

  (NOTE: Be sure to take up pretests after discussing them in class. Students who score 85 percent or higher on the pretest do not need to study this unit.)

- D. Provide students with copies of unit

SUGGESTED ACTIVITIES

E. Discuss unit and specific objectives

- Explain the type of measures the students will be using in this unit.
- Bring to class examples of measuring devices the students would use to measure liquids, dry measures, and weights.
- Bring to class a stop watch or a chronograph wristwatch so students can see seconds on a timepliece.

F. Discuss information and assignment sheets

1. Explain how to convert measures to equivalent measures of linear units; use Information Sheet, Section I.

   - Put several examples on the chalkboard; go over them, having students take notes.
   - Have students complete Assignment Sheet #1.
   - Go over answers in class.

   Explain how to convert measures to equivalent measures of liquid units; use Information Sheet, Section II.

   - Put several examples on the chalkboard; go over them, having students take notes.
   - Have students complete Assignment Sheet #2.
   - Go over answers in class.

   Explain how to convert measures to equivalent measures of dry units; use Information Sheet, Section III.

   - Put several examples on the chalkboard; go over them, having students take notes.
   - Go over answers in class.

   Explain how to convert measures to equivalent measures of dry units; use Information Sheet, Section III.

   - Put several examples on the chalkboard; go over them, having students take notes.
   - Have students complete Assignment Sheet #3.
   - Go over answers in class.

   Explain how to convert measures to equivalent measures to weight units; use Information Sheet, Section IV.

   - Put several examples on the chalkboard; go over them, having students take notes.

SUGGESTED ACTIVITIES

- Have students complete Assignment Sheet #4.
- Go over answers in class.

Explain how to convert measures to equivalent measures of time units; use Information Sheet, Section V and Transparency Master #1.

- Put several examples on the chalkboard; go over them, having students take notes.
- Take students complete Assignment Sheet #5.
- Go over answers in class.

2. Discuss the addition of units of measure using Information Sheet, Section VI.
   - Put several examples on the chalkboard; go over them, having students take notes.
   - Have students complete Assignment Sheet #6.
   - Go over answers in class.
3. Discuss the subtraction of units of measure using Information Sheet, Section VII.
   - Put several examples on the chalkboard; go over them, having students take notes.
   - Have students complete Assignment Sheet #7.
   - Go over answers in class.

G. Give test

H. Critique test and discuss in class

I. Reteach and retest as necessary

III. Unit references

Spann, Margaret. *Related Vocational Math*. Stillwater, Oklahoma: State Department of Vocational and Technical Education/Curriculum and Instructional Materials Center, 1972.

UNITS OF MEASURE
UNIT II

PRETEST

NAME _____ SCORE _____

1. Write the correct numeral in each blank below.

   a. 12 c. = _____ pt.

   b. 4 pt. = _____ c.

   c. 32 qt. = _____ ga.

   d. 3 bu. = _____ qt.

   e. 128 pt. = _____ bu.

   f. 2 lb. 9 oz. = _____ oz.

   g. 8750 lb. = _____ T. _____ lb.

   h. 15 T. = _____ lb.

   i. 3 yr. = _____ mo.

   j. 4 hr. = _____ min.

2. Add. Express the answer in simplest form.

   a. 5 lb. 10 oz.
      7 lb. 4 oz.
      8 lb. 6 oz.

   b. 2 hr. 45 min.
      3 hr. 20 min.
      2 hr. 10 min.

   c. 4 wk. 4 da.
      2 wk. 5 da.
      3 wk. 2 da.

   d. 3 hr. 43 min. 28 sec.
      7 hr. 19 min. 53 sec.
      5 hr. 52 min. 49 sec.

   e. 2 qt. 1 pt. 1 cup
      4 qt. 1 pt. 1 cup
      6 qt. 1 pt. 1 cup

3. Subtract.

   a. 8 da. 5 hr.
      6 da. 18 hr.

   b. 18 yd. 1 ft.
      12 yd. 2 ft.

   c. 5 ft. 10 in.
      2 ft. 11 in.

   d. 15 lb. 7 oz.
      6 lb. 14 oz.

   e. 23 lb.
      18 lb. 9 oz.

ANSWERS TO PRETEST
UNIT II

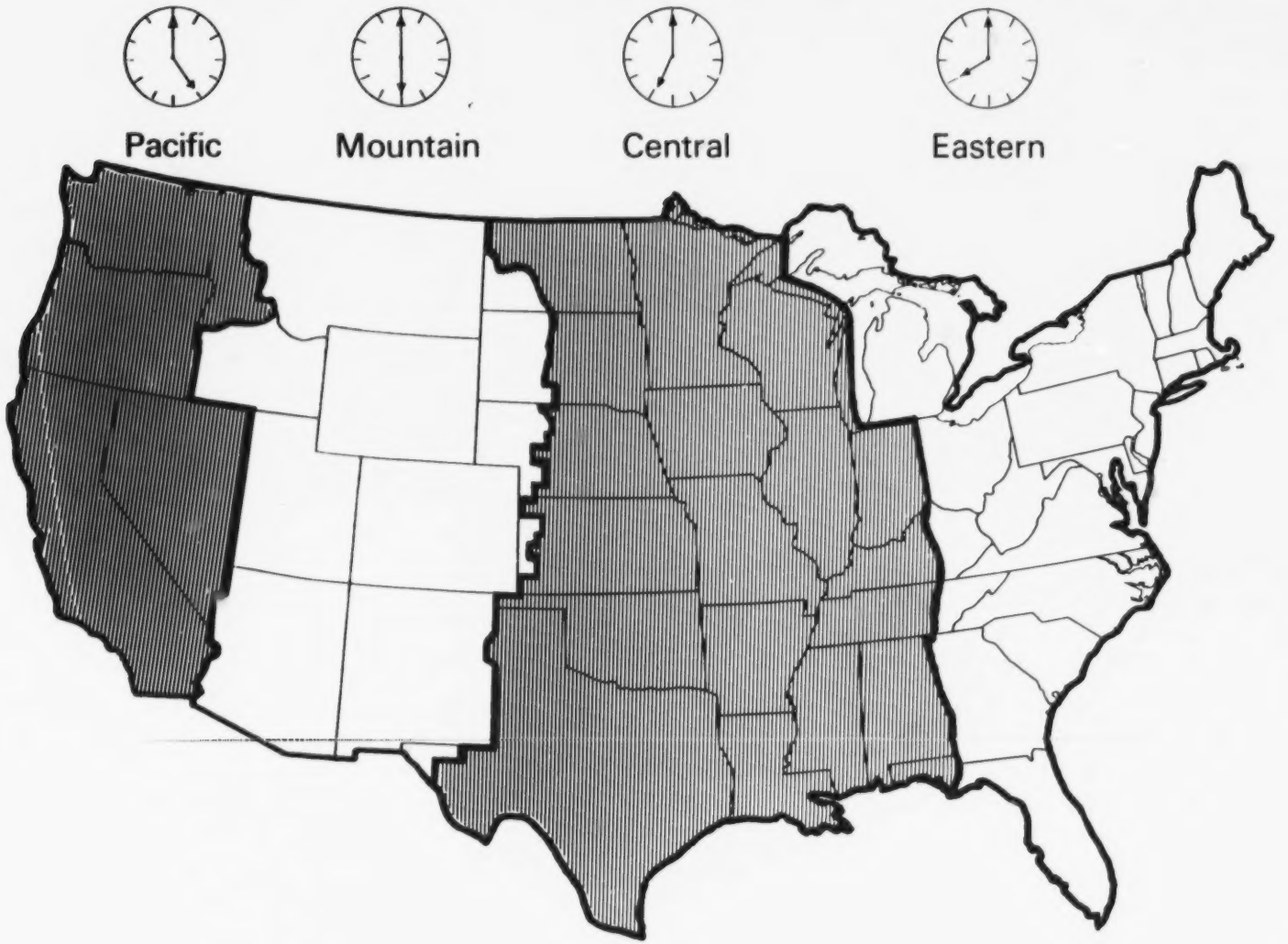
ANSWERS TO TEST

1. a. 6 pt.
   b. 8 c.
   c. 8 gal.
   d. 96 qt.
   e. 2 bu.
   f. 41 oz.
   g. 4 T., 750 lb.
   h. 30,000 lb.
   i. 36 mo.
   j. 240 min.

2. a. 21 lb. 4 oz.
   b. 8 hr. 15 min.
   c. 10 wk. 4 da.
   d. 16 hr. 56 min. 10 sec.
   e. 14 qt. 1 cup

3. a. 1 da. 11 hr.
   b. 5 yd. 2 ft.
   c. 2 ft. 11 in.
   d. 8 lb. 9 oz.
   e. 4 lb. 7 oz.

Time Zones



UNITS OF MEASURE
UNIT II

INFORMATION SHEET

I. Linear measure

A. 12 inches (in.) = 1 foot (ft.)

B. 36 in. = 1 yard (yd.)

C. 3 ft. = 1 yard

D. 16 1/2 = 1 rod (rd.)

E. 5 yds. 1/2 = 1 rd.

F. 5280 ft. = 1 mile (mi.)

G. 1760 yds. = 1 mi.

H. 320 rds. = 1 mi.

II. Liquid measure

A. 2 cups (c.) = 1 pint (pt.)

B. 2 pt. = 1 quart (qt.)

C. 4 qt. = 1 gallon (gal.)

D. 3 teaspoons (tsp.) = 1 tablespoon (Tbsp.)

E. 1 pt. = 16 fluid ounces (fl. oz.)

III. Dry measure

A. 2 pt. = 1 pt.

B. 8 qt. = 1 peck (pk.)

C. 4 pk. = 1 bushel (bu.)

D. 3 tsp. = 1 Tbsp.

IV. Weight measure

A. 16 oz. = 1 pound (lb.)

B. 2000 lb. = 1 ton (T.)

INFORMATION SHEET

V. Time

A. 60 seconds (sec.) = 1 minute (min.)

B. 60 min. = 1 hour (hr.)

C. 24 hr. = 1 day (da.)

D. 7 da. = 1 week (wk.)

E. 30 da. = 1 month (mo.)

F. 52 wk. = 1 year (yr.)

G. 365 da. = 1 year

H. 366 da. = 1 leap year

I. 12 mo. = 1 yr.

J. 10 yr. = 1 decade

K. 100 yr. = 1 century

L. Time zones (Transparency 1)

1. Central Standard Time (CST)

   (NOTE: This information is based on Central Standard Time.)

2. Pacific Standard Time (PST) = CTS - 2 hours

3. Mountain Standard Time (MST) = CTS -1 hour

4. Eastern Standard Time (EST) = CTS + 1 hour

VI. Addition of measures

A. Add the columns separately

B. Express the answer in simplest terms

EXAMPLE:

1.
$$\begin{array}{r} 6 \text{ ft. } 3 \text{ in.} \\ +\ 1 \text{ ft. } 10 \text{ in.} \\ \hline 7 \text{ ft. } 13 \text{ in.} \end{array}$$

2. 13 in. = 1 ft. 1 in.

INFORMATION SHEET

3. Add: 1 ft. 1 in. + 7 ft. = 8 ft. 1 in.

4. The answer in simplest terms: 8 ft. 1 in.

VII. Subtraction of measures

A. Subtract the columns separately

B. Borrowing may be necessary

EXAMPLE:

1. 6 ft. 3 in.
   − 1 ft. 8 in.

2. Need more inches, so one of the feet is used

   a. 1 ft. = 12 in.

   b. 6 ft. 3 in. = 5 ft. 3 in. + 12 in. = 5 ft. 15 in.

3. Subtract: 5 ft. 15 in.
   − 1 ft. 8 in.
   4 ft. 7 in.

UNITS OF MEASURE
UNIT II

ASSIGNMENT SHEET #1 — USING MEASURES OF LENGTH

NAME _____ SCORE _____

Complete the following chart by reducing the given measurements to their smallest form. The first two are done for you as examples. You may not have a number for each column; use a zero "0" for any column that is blank.

	Yards	Feet	Inches
1. 73 inches	2	0	1
2. 122 inches	3	1	2
3. 34 inches			
4. 19 inches			
5. 84 inches			
6. 7 ft. 4 in.			
7. 8 ft. 9 in.			
8. 12 ft. 3 in.			
9. 15 ft. 6 in.			
10. 20 ft. 7 in.			
11. 13 ft.			
12. 23 ft.			
13. 19 ft. 3 in.			
14. 125 ft. 11 in.			
15. 220 ft. 29 in.			
16. 322 inches			
17. 35 ft. 86 in.			
18. 23 ft. 67 in.			
19. 7 ft. 154 in.			
20. 42 ft. 45 in.			

UNITS OF MEASURE
UNIT II

ASSIGNMENT SHEET #2 — USING LIQUID MEASURES

NAME _____ SCORE _____

Directions: Write the correct numeral in each blank below.

1. a. 8 qt. = _____ pt.
   b. 7 pt. = _____ fl. oz.
   c. 12 c. = _____ pt.
2. a. 2 gal. = _____ qt.
   b. 12 gal. = _____ qt.
   c. 12 c. = _____ qt.
3. a. 4 c. = _____ pt.
   b. 48 fl. oz. = _____ pt.
   c. 5 gal. = _____ qt.
4. a. 64 fl. oz. = _____ pt.
   b. 14 c. = _____ pt.
   c. 32 fl. oz. = _____ c.
5. a. 4 pt. = _____ c.
   b. 6 gal. = _____ pt.
   c. 10 pt. = _____ fl. oz.
6. a. 12 qt. = _____ gal.
   b. 4 qt. = _____ c.
   c. 10 gal. = _____ pt.
7. a. 4 pt. = _____ fl. oz.
   b. 32 qt. = _____ gal.
   c. 2 qt. = _____ fl. oz.

ASSIGNMENT SHEET #2

8. a. 3 gal. 2 qt. = _____ qt.

   b. 4 gal. 2 qt. 1 pt. = _____ pt.

   c. 1 pt. = _____ fl. oz.

9. a. 4 gal. 3 qt. = _____ qt.

   b. 5 gal. 3 qt. 1 pt. = _____ pt.

   c. 1 qt. = _____ fl. oz.

10. a. 18 gal. 1 qt. = _____ qt.

    b. 15 gal. 1 qt. = _____ pt.

    c. 1 gal. = _____ fl. oz.

11. a. 54 gal. 3 qt. = _____ qt.

    b. 26 gal. 3 qt. = _____ pt.

    c. 2 pt. 10 fl. oz. = _____ fl. oz.

UNITS OF MEASURE
UNIT II

ASSIGNMENT SHEET #3 — USING DRY MEASURES

NAME _____ SCORE _____

Directions: Write the correct numeral in each blank below.

1. a. 4 qt. = _____ pt.
   b. 3 bu. = _____ qt.
   c. 32 pt. = _____ pk.
2. a. 6 pk. = _____ qt.
   b. 5 pk. = _____ pt.
   c. 96 qt. = _____ bu.
3. a. 16 pt. = _____ qt.
   b. 10 bu. = _____ pt.
   c. 256 pt. = _____ bu.
4. a. 12 pk. = _____ bu.
   b. 4 pk. = _____ pt.
   c. 64 qt. = _____ bu.
5. a. 5 bu. = _____ pk.
   b. 4 bu. = _____ qt.
   c. 160 pt. = _____ pk.
6. a. 32 qt. = _____ pk.
   b. 3 bu. = _____ pt.
   c. 128 pt. = _____ bu.
7. a. 8 qt. = _____ pt.
   b. 6 bu. = _____ qt.
   c. 192 qt. = _____ bu.

UNITS OF MEASURE
UNIT II

ASSIGNMENT SHEET #4 — USING MEASURES OF WEIGHT

NAME _____ SCORE _____

1. a. 2 lb. 9 oz. = _____ oz.

   b. 6 lb. 5 oz. = _____ oz.

   c. 24 lb. 8 oz. = _____ oz.

   d. 15 lb. 11 oz. = _____ oz.

   e. 19 lb. 10 oz. = _____ oz.

2. Change to pounds and ounces.

   a. 54 oz. = _____ lb. _____ oz.

   b. 67 oz. = _____ lb. _____ oz.

   c. 57 oz. = _____ lb. _____ oz.

   d. 83 oz. = _____ lb. _____ oz.

   e. 79 oz. = _____ lb. _____ oz.

3. Change to tons and pounds.

   a. 6270 lb. = _____ T. _____ lb.

   b. 8750 lb. = _____ T. _____ lb.

   c. 9320 lb. = _____ T. _____ lb.

   d. 15,270 lb. _____ T. _____ lb.

   e. 21,500 lb. = _____ T. _____ lb.

4. Write the correct numeral in each of the following blanks.

   a. 3 lb. = _____ oz.

   b. 36 oz. = _____ lb. _____ oz.

   c. 15 T. = _____ lb.

   d. 9000 lb. = _____ T. _____ lb.

ASSIGNMENT SHEET #4

e. 96 oz. = _____ lb.

f. 10 lb. = _____ oz.

g. 4 T. 400 lb. = _____ lb.

h. 5 lb. 7 oz. = _____ oz.

UNITS OF MEASURE
UNIT II

ASSIGNMENT SHEET #5 — USING MEASURES OF TIME

NAME _____ SCORE _____

1. Write the correct numeral in each blank below.
   a. How many seconds are there in one hour? _____
   b. How many hours are there in one week? _____
   c. 52 weeks is about how many days less than one year? _____
   d. How many decades are there in a century? _____
2. Write the correct numeral in each of the blanks below.
   a. 2400 sec. = _____ min.
   b. 4 hr. = _____ min.
   c. 24 da. = _____ wk. _____ da.
   d. 3 yr. = _____ mo.
   e. 45 min. = _____ sec.
   f. 195 min. = _____ hr. _____ min.
   g. 2 hr. = _____ sec.
   h. 12 hr. 25 min. = _____ min.
   i. 4 centuries = _____ decades
   j. 55 decades = _____ centuries _____ yr.
3. Write the correct answer to each of the following questions.
   a. Mountain Standard Time is _____ hours behind Central Standard Time.
   b. Central Standard Time is _____ hours ahead of Pacific Standard Time.
   c. Mountain Standard Time is _____ hours behind Eastern Standard Time.
   d. Pacific Standard Time is _____ hours behind Eastern Standard Time.

ASSIGNMENT SHEET #5

e. A man travels from New York to Seattle, Washington. Should he turn his watch ahead one hour or back one hour each time he crosses from one time zone to another?

f. A man forgot to change his watch when he flew from Los Angeles in the Pacific Time Zone to Chicago in the Central Time Zone. If his watch showed 5:45, what time was it in Chicago?

g. A televised football gam began at 2 p.m. Pacific Standard Time. At what time was the game seen in Denver, which is on Mountain Standard Time? In New York?

h. Mr. Wilberforce, who was in Cleveland (EST) on a business trip, wished to call his family in Seattle (PST) at 7 p.m. Seattle time. At what time must he place his call in Cleveland?

UNITS OF MEASURE
UNIT II

ASSIGNMENT SHEET #6 — REVIEW USING MEASURES

NAME _____ SCORE _____

1. Place the letter to the correct answer in the blank. There are more answers than problems. (See additional answers on back of pages.)

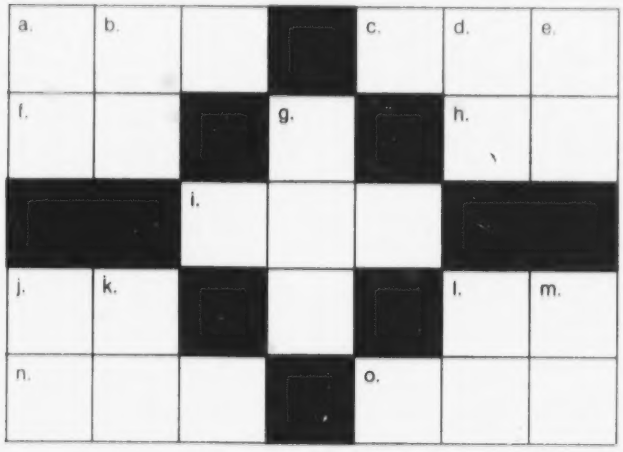
_____a. 4 pecks = _____ qt.	1. 6 tablespoons
_____b. 12 tablespoons = _____ tsp.	2. 4 dozen
_____c. 1600 ounces = _____ lb.	3. 36 teaspoons
_____d. 12 qt. = _____ gal.	4. 16 qt.
_____e. 32 pt. = _____ qt.	5. 2 lbs. 11 oz.
_____f. 16 gallons = _____ qt.	6. 100 lb.
_____g. 12 dozen = _____ units	7. 12 qt.
_____h. 19,200 lb. = _____ tons	8. 3 pecks, 4 qt.
_____i. 2 cups = _____ fl. oz.	9. 144 units
_____j. 32 fl. oz. = _____ pt.	10. 12 lb.
_____k. 6 pt. = _____ c.	11. 3 gallons
_____l. 192 ounces = _____ lb.	12. 120 qt.
_____m. 48 units = _____ doz.	13. 3 tons 720 lb.
_____n. 48 fl. oz. = _____ pt.	14. 32 qt.
_____o. 24 pt. = _____ qt.	15. 17 measuring cups
_____p. 28 qt. = _____ pk.	16. 3 pt.
_____q. 18 teaspoons = _____ Tbsp.	17. 15 pecks
_____r. 15 pk. = _____ qt.	18. 4 pt.
_____s. 6720 pounds = _____ tons	19. 12 cups
_____t. 43 ounces = _____ lb.	20. 146 units

ASSIGNMENT SHEET #6

21. 64 qt.
22. 23 tablespoons
23. 19 tons
24. 9 tons, 1200 lb.
25. 16 fl. oz.
26. 2 pt.

2. Work the cross-number puzzle below

Across		Down	
a.	Days in a leap year	a.	1/6 of 192
c.	6 × 24	b.	Years in 6 decades
f.	Ounces in 1 1/4 lb.	d.	Minutes in 3/4 hr.
h.	Inches in 4 ft. 2 in.	e.	Inches in 1 1/9 yd.
i.	Minutes in 5 hr.	g.	Pounds in 1/4 T.
j.	Inches in 1 yd.	j.	Ounces in 2 lb. 4 oz.
l.	216 ÷ 8	k.	Months in 5 yr.
n.	Years in 6 centuries	l.	Quarts in 6 gal.
o.	Hours in 10 da.	m.	Cents in 7 dimes



UNITS OF MEASURE
UNIT II

ASSIGNMENT SHEET #7 — ADDITION

NAME _____ SCORE _____

Directions: Add. Express the sum in the simplest form as in Example 1a.

	a	b	c	d
1.	2 gal. 3 qt. 3 gal. 2 qt. 5 gal. 5 qt. = 6 gal. 1 qt.	2 qt. 1 pt. 4 qt. 1 pt.	6 gal. 2 qt. 4 gal. 3 qt.	5 lb. 10 oz. 2 lb. 8 oz.
2.	7 lb. 7 oz. 6 lb. 6 oz.	4 lb. 8 oz. 3 lb. 9 oz.	2 hr. 30 min. 1 hr. 45 min.	8 yr. 9 mo. 2 yr. 4 mo.
3.	2 gal. 3 qt. 1 gal. 2 qt. 3 gal. 3 qt.	3 qt. 1 pt. 2 qt. 1 pt. 4 qt. 1 pt.	5 yr. 2 mo. 6 yr. 9 mo. 3 yr. 6 mo.	4 wk. 4 da. 2 wk. 5 da. 3 wk. 2 da.
4.	5 lb. 10 oz. 7 lb. 4 oz. 8 lb. 6 oz.	2 lb. 15 oz. 6 lb. 8 oz. 4 lb. 9 oz.	2 hr. 45 min. 3 hr. 20 min. 2 hr. 10 min.	4 wk. 4 da. 2 wk. 6 da. 3 wk. 3 da.
5.	2 gal. 3 qt. 3 gal. 2 qt. 1 gal. 1 qt. 4 gal. 2 qt. 5 gal. 3 qt.	3 lb. 2 oz. 2 lb. 1 oz. 4 lb. 5 oz. 2 lb. 3 oz. 5 lb. 2 oz.	5 yr. 2 mo. 3 yr. 10 mo. 6 yr. 04 mo. 4 yr. 11 mo. 2 yr. 6 mo.	1 hr. 10 min. 2 hr. 15 min. 3 hr. 20 min. 4 hr. 25 min. 5 hr. 30 min.

ASSIGNMENT SHEET #7

	a.	b.	c.
6.	2 gal. 3 qt. 1 pt. 3 gal. 2 qt. 1 pt. 1 gal. 1 qt. 1 pt.	5 hr. 50 min. 45 sec. 2 hr. 40 min. 20 sec. 3 hr. 10 min. 30 sec.	2 qt. 1 pt. 1 cup 4 qt. 1 pt. 1 cup 6 qt. 1 pt. 1 cup
7.	6 gal. 2 qt. 1 pt. 4 gal. 3 qt. 1 pt. 5 gal. 3 qt. 1 pt.	3 yd. 2 ft. 9 in. 1 yd. 1 ft. 8 in. 3 yd. 2 ft. 6 in.	8 yr. 9 mo. 25 da. 2 yr. 5 mo. 10 da. 7 yr. 6 mo.
8.	6 yr. 2 mo. 3 yr. 7 mo. 4 yr. 1 mo.	4 wk. 5 da. 1 wk. 3 da. 2 wk. 6 da.	3 hr. 43 min. 28 sec. 7 hr. 19 min. 53 sec. 5 hr. 52 min. 49 sec.

UNITS OF MEASURE
UNIT II

ASSIGNMENT SHEET #8 — SUBTRACTION

NAME _____ SCORE _____

Subtract.

	a.	b.	c.
1.	4 ft. 1 ft. 9 in.	8 ft. 8 in. 4 ft. 10 in.	12 ft. 4 in. 3 ft. 9 in.
2.	19 ft. 2 in. 11 ft. 8 in.	5 ft. 10 in. 2 ft. 11 in.	15 ft. 9 in. 8 ft. 10 in.
3.	5 yd. 2 yd. 2 ft.	8 yd. 1 ft. 5 yd. 2 ft.	6 yd. 1 ft. 4 yd. 2 ft.
4.	11 yd. 3 yd. 1 ft.	18 yd. 1 ft. 12 yd. 2 ft.	29 yd. 4 yd. 1 ft. 7 in.
5.	3 hr. 1 hr. 30 min.	6 hr. 40 min. 2 hr. 50 min.	16 hr. 10 min. 8 hr. 20 min.
6.	11 hr. 18 min. 3 hr. 45 min.	14 hr. 45 min. 7 hr. 52 min.	22 hr. 17 min. 6 hr. 38 min.

ASSIGNMENT SHEET #8

7.	5 da. 2 da. 12 hr.	15 da. 14 hr. 8 da. 23 hr.	12 da. 17 hr. 7 da. 20 hr.
8.	8 da. 5 hr. 6 da. 18 hr.	11 da. 7 hr. 6 da. 22 hr.	15 da. 13 hr. 9 da. 18 hr.
9.	8 wk. 6 wk. 5 da.	6 wk. 2 da. 3 wk. 5 da.	12 wk. 1 da. 6 wk. 6 da.
10.	7 wk. 3 da. 6 wk. 4 da.	19 wk. 1 da. 1 wk. 4 da.	17 wk. 5 da. 9 wk. 6 da.
11.	4 lb. 10 oz. 2 lb. 12 oz.	16 lb. 2 oz. 11 lb. 14 oz.	13 lb. 5 oz. 8 lb. 10 oz.
12.	15 lb. 7 oz. 6 lb. 14 oz.	7 lb. 6 oz. 3 lb. 9 oz.	23 lb. 18 lb. 9 oz.

UNITS OF MEASURE
UNIT II

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

1. 2 yd. 0 ft. 1 in.
2. 3 yd. 1 ft. 2 in.
3. 0 yd. 2 ft. 10 in.
4. 0 yd. 1 ft. 7 in.
5. 2 yd. 1 ft. 0 in.
6. 2 yd. 1 ft. 4 in.
7. 2 yd. 2 ft. 9 in.
8. 4 yd. 0 ft. 3 in.
9. 5 yd. 0 ft. 6 in.
10. 6 yd. 2 ft. 7 in.
11. 4 yd. 1 ft. 0 in.
12. 7 yd. 2 ft. 0 in.
13. 6 yd. 1 ft. 3 in.
14. 41 yd. 2 ft. 11 in.
15. 74 yd. 0 ft. 5 in.
16. 8 yd. 2 ft. 10 in.
17. 14 yd. 0 ft. 2 in.
18. 9 yd. 1 ft. 7 in.
19. 6 yd. 1 ft. 10 in.
20. 15 yd. 0 ft. 9 in.

Assignment Sheet #2

1. a. 16
   b. 112
   c. 6

2. a. 8
   b. 48
   c. 3

3. a. 2
   b. 3
   c. 20

4. a. 4
   b. 7
   c. 4

5. a. 8
   b. 48
   c. 160

6. a. 3
   b. 16
   c. 80

7. a. 64
   b. 8
   c. 64

8. a. 14
   b. 37
   c. 16

9. a. 19
   b. 47
   c. 32

10. a. 73
    b. 122
    c. 128

11. a. 219
    b. 214
    c. 42

Assignment Sheet #3

1. a. 8
   b. 96
   c. 2

2. a. 48
   b. 80
   c. 3

3. a. 8
   b. 640
   c. 4

4. a. 3
   b. 64
   c. 2

ANSWERS TO ASSIGNMENT SHEETS

5. a. 20
   b. 128
   c. 10

6. a. 4
   b. 192
   c. 2

7. a. 16
   b. 192
   c. 6

Assignment Sheet #4

1. a. 41
   b. 101
   c. 392
   d. 251
   e. 314

2. a. 3, 6
   b. 4, 3
   c. 3, 9
   d. 5, 3
   e. 4, 15

3. a. 3, 270
   b. 4, 750
   c. 4, 1320
   d. 7, 1270
   e. 10, 1500

4. a. 48
   b. 2, 4
   c. 30,000
   d. 4, 1000
   e. 6
   f. 160
   g. 8400
   h. 87

Assignment Sheet #5

1. a. 3600 seconds
   b. 168 hours
   c. about 1 day
   d. 10 decades

2. a. 40
   b. 240
   c. 3, 3
   d. 36
   e. 2700
   f. 3, 15
   g. 7200
   h. 745
   i. 40
   j. 5, 50

3. a. 1
   b. 2
   c. 2
   d. 3
   e. back one hour
   f. 7:45
   g. 3 p.m., 5 p.m.
   h. 10 p.m.

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #6

1.

a. 14	f. 21	k. 19	p. 8
b. 3	g. 9	l. 10	q. 1
c. 6	h. 24	m. 2	r. 12
d. 11	i. 25	n. 16	s. 13
e. 4	j. 26	o. 7	t. 5

2.

a. 3	b. 6	6	■	c. 1	d. 4	e. 4
f. 2	0	■	g. 5	■	h. 5	0
■	■	i. 3	0	0	■	■
j. 3	k. 6	■	0	■	l. 2	m. 7
n. 6	0	0	■	o. 2	4	0

Assignment Sheet #7

1. a. 6 gal. 1 qt.
   b. 7 qt.
   c. 11 gal. 1 qt.
   d. 8 lb. 2 oz.

2. a. 13 lb. 13 oz.
   b. 8 lb. 1 oz.
   c. 4 hr. 15 min.
   d. 11 yr. 1 mo.

3. a. 8 gal.
   b. 10 qt. 1 pt.
   c. 15 yr. 5 mo.
   d. 10 wk. 4 da.

4. a. 21 lb. 4 oz.
   b. 14 lb.
   c. 8 hr. 15 min.
   d. 10 wk. 6 da.

5. a. 17 gal. 3 qt.
   b. 16 lb. 13 oz.
   c. 22 yr. 9 mo.
   d. 16 hr. 40 min.

ANSWERS TO ASSIGNMENT SHEETS

6. a. 7 gal. 3 qt. 1 pt.
   b. 11 hr. 41 min. 35 sec.
   c. 14 qt. 1 c.

7. a. 17 gal. 1 qt. 1 pt.
   b. 9 yd. 11 in.
   c. 18 yr. 9 mo. 5 da.

8. a. 13 yr. 10 mo.
   b. 9 wk.
   c. 16 hr. 56 min. 10 sec.

Assignment Sheet #8

1. a. 2 ft. 3 in.
   b. 3 ft. 10 in.
   c. 8 ft. 7 in.

2. a. 7 ft. 6 in.
   b. 2 ft. 11 in.
   c. 6 ft. 11 in.

3. a. 2 yd. 1 ft.
   b. 2 yd. 2 ft.
   c. 1 yd. 2 ft.

4. a. 7 yd. 2 ft.
   b. 5 yd. 2 ft.
   c. 24 yd. 1 ft. 5 in.

5. a. 1 hr. 30 min.
   b. 3 hr. 50 min.
   c. 7 hr. 50 min.

6. a. 7 hr. 33 min.
   b. 6 hr. 53 min.
   c. 15 hr. 39 min.

7. a. 2 da. 12 hr.
   b. 6 da. 15 hr.
   c. 4 da. 21 hr.

8. a. 1 da. 11 hr.
   b. 4 da. 9 hr.
   c. 5 da. 19 hr.

9. a. 1 wk. 2 da.
   b. 2 wk. 4 da.
   c. 5 wk. 2 da.

10. a. 6 da.
    b. 17 wk. 4 da.
    c. 7 wk. 6 da.

11. a. 1 lb. 14 oz.
    b. 4 lb. 4 oz.
    c. 4 lb. 11 oz.

12. a. 8 lb. 9 oz.
    b. 3 lb. 13 oz.
    c. 4 lb. 7 oz.

UNITS OF MEASURE
UNIT II

TEST

NAME _____ SCORE _____

1. Write the correct numeral in each blank below.

   a. 40 in. = _____ ft. _____ in.

   b. 3 yd. 2 ft. = _____ ft.

   c. 36 fl. oz. = _____ pt. _____ fl. oz.

   d. 5 pt. = _____ c.

   e. 46 qt. = _____ gal. _____ qt.

   f. 3 pk. = _____ qt.

   g. 53 oz. = _____ lb. _____ oz.

   h. 9400 lb. = _____ T. _____ lb.

   i. 4 lb. 12 oz. = _____ oz.

   j. 5 min. = _____ sec.

   k. 96 min. = _____ hr. _____ min.

   l. 36 decades = _____ yr.

   m. 2 centuries = _____ decades

   n. 24 pk. = _____ bu.

   o. 38 pt. = _____ gal. _____ qt.

   p. 52,800 ft. = _____ mi.

   q. 11 yd. = _____ rd.

   r. 1 ½ pt. = _____ fl. oz.

   s. 30 qt. = _____ pk. _____ qt.

   t. 32 oz. = _____ lb.

TEST

u. 5 lb. = _____ oz.

v. 5 T. = _____ lb.

w. 4 hr. 30 min. = _____ min.

x. 120 hr. = _____ da.

y. 47 decades = _____ centures _____ yr.

z. 137 min. = _____ hr. _____ min.

aa. 7 p.m. PST = _____ CST

bb. 10 a.m. EST = _____ MST

2. Add. Express the answer in simplest form.

a.
3 ft. 5 in.
7 ft. 7 in.
4 ft. 11 in.
2 ft. 4 in.

b.
2 mi. 220 yd.
5 mi. 1100 yd.
3 mi. 653 yd.
4 mi. 912 yd.

c.
2 gal. 3 qt. 1 pt.
1 gal. 1 qt. 3 pt.
4 gal. 2 qt. 2 pt.
5 gal. 3 qt. 1 pt.

d.
7 lb. 3 oz.
2 lb. 9 oz.
4 lb. 5 oz.
1 lb. 10 oz.

e.
2 T. 450 lb.
1 T. 800 lb.
3 T. 1400 lb.
5 T. 975 lb.

f.
2 hr. 20 min.
4 hr. 10 min.
3 hr. 10 min.
5 hr. 20 min.

g.
3 bu. 1 pk.
2 bu. 2 pk.
5 bu. 3 pk.
1 bu. 3 pk.

h.
1 bu. 2 pk. 3 qt.
6 pk. 5 qt.
4 bu. 3 pk. 4 qt.
2 bu. 2 pk. 1 qt.

TEST

i. 2 yd. 1 ft. 5 in.
3 yd. 2 ft. 8 in.
1 yd. 11 in.

j. 3 qt. 1 pt. 2 c.
3 pt. 5 c.
2 qt. 1 c.

3. Subtract.

a. 17 ft. 2 in.
8 ft. 7 in.

b. 5 yd. 7 in.
2 yd. 1 ft. 10 in.

c. 6 lb. 10 oz.
2 lb. 13 oz.

d. 18 lb.
5 lb. 3 oz.

e. 6 T. 1800 lb.
3 T. 1575 lb.

f. 7 Tbsp. 1 tsp.
2 Tbsp. 2 tsp.

g. 12 bu. 1 pk.
5 bu. 3 pk.

h. 17 gal. 2 qt. 1 pt.
4 gal. 3 qt. 3 pt.

i. 9 qt. 1 pt. 1 c.
2 qt. 3 pt. 2 c.

j. 12 hr. 48 min.
7 hr. 55 min.

UNITS OF MEASURE
UNIT II

ANSWERS TO TEST

1. a. 3, 4
   b. 11
   c. 2, 4
   d. 10
   e. 11, 2
   f. 24
   g. 3, 5
   h. 4, 1400
   i. 76
   j. 300
   k. 1, 36
   l. 360
   m. 20
   n. 6
   o. 4, 3
   p. 10
   q. 2
   r. 24
   s. 3, 6
   t. 2
   u. 80
   v. 10,000
   w. 270
   x. 5
   y. 4, 70
   z. 2, 17
   aa. 9 p.m.
   bb. 8 a.m.

2. a. 18 ft. 3 in.
   b. 15 mi. 1125 yd.
   c. 15 gal. 0 qt. 1 pt.
   d. 15 lb. 11 oz.
   e. 12 T. 1625 lb.
   f. 15 hr.
   g. 13 bu. 1 pk.
   h. 10 bu. 2 pk. 5 qt
   i. 7 yd. 2 ft.
   j. 8 qt. 0 pt. 1 c.

3. a. 8 ft. 7 in.
   b. 2 yd. 2 ft. 9 in.
   c. 3 lb. 13 oz.
   d. 12 lb. 13 oz.
   e. 3 T. 225 lb.
   f. 4 Tbsp. 2 tsp.
   g. 6 bu. 2 pk.
   h. 12 gal. 2 qt.
   i. 5 qt. 1 pt. 1 c.
   f. 4 hr. 53 min.

FIGURING BOARD FEET
UNIT III

UNIT OBJECTIVE

After completing this unit, the student should be able to define a board foot and list the steps for figuring the cost of lumber. He should be able to demonstrate the procedures for calculating board feet and figuring the cost of lumber. This knowledge will be evidenced by scoring 85 percent on the unit test.

SPECIFIC OBJECTIVES

After completing this unit, the student should be able to

1. Define a board foot.
2. Write the formula for figuring board feet.
3. List the steps for figuring the cost of lumber.
4. Demonstrate the ability to:
   a. Solve five problems determining board feet.
   b. Solve two problems figuring the cost of lumber.

FIGURING BOARD FEET
UNIT III

SUGGESTED ACTIVITIES

I. Unit contents

A. Objective sheet

B. Suggested activities

C. Pretest

D. Answers to pretest

E. Information sheets

F. Assignment sheets

1. Assignment Sheet #1 — Calculating Board Feet

2. Assignment Sheet #2 — Calculating Cost of Lumber

G. Answers to assignment sheets

H. Test

I. Answers to test

II. Instructor's guide

A. Order (or obtain) materials to supplement unit

B. Give pretest

C. Critique pretest and go over results in class

(NOTE: Be sure to take up pretests after discussing them in class. Students who score 85 percent or higher on the pretest do not need to study this unit.)

D. Provide students with copies of unit

E. Discuss unit and specific objectives.

- Explain the uses of calculating board feet and the price of lumber
- Have a contractor or representative from a lumber yard come in and bring samples of the various sizes of boards to show students the differences between the given measurements and the actual measurements of the boards.

SUGGESTED ACTIVITIES

F. Discuss information and assignment sheets

1. Go over the definition of a board foot using Information Sheet, Section I.

2. Discuss the formula for figuring board feet using Information Sheet, Section II.

   - Have students measure actual boards to see the difference between the given measurements and the actual measurements.
   - Put the formula on the chalkboard, and discuss it with the class.
   - Give the students some sample problems to work in class; go over the answers in class.

3. List the steps for figuring the cost of lumber; use Information Sheet, Section III.

   - Write the steps on the chalkboard, discussing each step as you write it.
   - Give the students some sample problems to work in class; go over answers in class.

4. Demonstrate how to solve problems determining board feet and figuring the cost of lumber.

   - Have students complete Assignment Sheet #1.
   - Go over answers in class.
   - Have students complete Assignment Sheet #2.
   - Go over answers in class.

G. Give test

H. Critique test and discuss in class

I. Reteach and retest as necessary

III. Unit references

Spann, Margaret. *Related Vocational Math*. Stillwater, Oklahoma: State Department of Vocational and Technical Education/Curriculum and Instructional Materials Center, 1972.

FIGURING BOARD FEET
UNIT III

PRETEST

1. What is a board foot?

2. Write the formula for figuring board feet.

3. List the steps for figuring the cost of lumber.

   a.

   b.

   c.

4. Determine the board feet in the following problems.

   a. 5–1″ x 4″ x 14′ =

   b. 3–2″ x 8″ x 8′ =

   c. 12–1″ x 8″ x 8′ =

   d. 8–2″ x 4″ x 20′ =

   e. 7–2″ x 4″ x 12′ =

PRETEST

5. Determine the cost of the lumber in the following problems.

   a. Five boards 1″ × 8″ × 10′ at $80.00 per M.

   b. Six board 2″ × 6″ × 14′ at $75.00 per M.

FIGURING BOARD FEET
UNIT III

ANSWERS TO PRETEST

1. A piece of lumber one inch thick, twelve inches wide, and twelve inches long.

2. $$\frac{\text{number of pieces} \times \text{thickness in inches} \times \text{width in inches} \times \text{length in feet}}{\text{divided by twelve}}$$

3. a. figure number of board feet
   b. multiply this number by the cost per thousand
   c. mark off three decimal places

4. a. 23 1/2 board feet
   b. 32 board feet
   c. 64 board feet.
   d. 106 2/3 board feet
   e. 56 board feet

5. a. $2.67
   b. $7.20

FIGURING BOARD FEET
UNIT III

INFORMATION SHEET

I. Terms and definitions

A. Board foot — A piece of lumber one inch thick, twelve inches wide, and twelve inches long

B. M = 1000 board feet

II. Formula for board feet

$$\frac{\text{number of pieces} \times \text{thickness in inches} \times \text{width in inches} \times \text{length in feet}}{\text{divided by twelve}}$$

EXAMPLE: three board one inch thick by six inches wide by ten feet long

$$\frac{3 \times 1'' \times 6'' \times 10'}{12} = \frac{180}{12} = 15 \text{ board feet}$$

(NOTE: the answer will be incorrect if it is not labeled board feet.)

In the chart below, you will find the nominal sizes (the dimensions the boards are sold at) and the actual size of boards.

Nominal (rough)	Actual (S4S)
1" x 4"	3/4" x 3 1/2"
1" x 6"	3/4" x 5 1/2"
1" x 8"	3/4" x 7 1/4"
1" x 10"	3/4" x 9 1/4"
1" x 12"	3/4" x 11 1/4"
2" x 4"	1 1/2" x 3 1/2"
2" x 6"	1 1/2" x 5 1/2"
2" x 8"	1 1/2" x 7 1/4"
2" x 10"	1 1/2" x 9 1/4"
2" x 12"	1 1/2" x 11 1/4"
4" x 4"	3 1/2" x 3 1/2"
4" x 6"	3 1/2" x 5 1/2"

INFORMATION SHEET

III. Figuring cost of lumber

A. Figure number of board feet

B. Multiply this number by the cost per thousand

C. Mark off three decimal places

EXAMPLE: Two boards two inches thick by four inches wide by twelve feet long at $50.00 per M (1,000 board feet)

$$\frac{2 \times 2'' \times 4'' \times 12'}{12} = 16 \text{ board feet}$$

16 board feet × $50.00 = $800.00

$800.00 = $ .80

FIGURING BOARD FEET
UNIT III

ASSIGNMENT SHEET #1 — CALCULATING BOARD FEET

NAME _____ SCORE _____

Directions: Calculate the total board feet in each of the problems listed below.

1. 1–1" x 6" x 10' =

2. 1–1" x 2" x 12' =

3. 5–1" x 4" x 14' =

4. 7–2" x 4" x 12' =

5. 10–4" x 6" x 10' =

6. 3–2" x 8" x 8' =

7. 6–2" x 6" x 20' =

8. 12–1" x 8" x 8' =

ASSIGNMENT SHEET #1

9. 1–4″ × 4″ × 8′ =

10. 8–2″ × 4″ × 20′ =

FIGURING BOARD FEET
UNIT III

ASSIGNMENT SHEET #2 — CALCULATING COST OF LUMBER

NAME _____ SCORE _____

Directions: Figure the cost of the lumber in each of the problems listed below. Give your answer correct to the nearest cent. (M = 1,000 board feet)

1. One board 2″ × 4″ × 12′ at $100.00 per M.

2. Five boards 1″ × 8″ × 10′ at $80.00 per M.

3. Ten boards 4″ × 4″ × 15′ at $245.00 per M.

4. Twenty boards 1″ × 12″ × 6′ at $60.00 per M.

5. Six boards 2″ × 6″ × 14′ at $75.00 per M.

6. A contractor ordered the following for framing a garage:

36 studs, 2″ × 4″ × 8′
9 sills, 1″ × 4″ × 10′
4 plates, 2″ × 6″ × 20′
24 rafters, 2″ × 8″ × 14′
60 1″ × 6″ × 22′ for sheathing

ASSIGNMENT SHEET #2

a. Find the total number of board feet he ordered.

b. If he paid $135.00 per M, how much did the order cost?

FIGURING BOARD FEET
UNIT III

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

1. 5 board feet
2. 2 board feet
3. 23 1/3 board feet
4. 56 board feet
5. 200 board feet
6. 32 board feet
7. 120 board feet
8. 64 board feet
9. 10 2/3 board feet
10. 106 2/3 board feet

Assignment Sheet #2

1. $.80
2. $2.67
3. $49.00
4. $1.26
5. $7.20
6. a. 1440 board feet
   b. $194.40

FIGURING BOARD FEET
UNIT III

TEST

NAME _____ SCORE _____

1. What is a board foot?

2. Write the formula for figuring board feet

3. List the steps for figuring the cost of lumber.

   a.

   b.

   c.

4. Determine the board feet in the following problems.

   a. 1–1" x 4" x 12' =

   b. 3–2" x 4" x 10' =

   c. 2–4" x 4" x 6' =

   d. 10–2" x 6" x 8' =

   e. 7–4" x 6" x 15' =

5. Determine the cost of the lumber in the following problems.

   a. 4 boards 1" x 4" x 20' at $48.00 per M.

TEST

b. 12 boards 2" x 6" x 15' at $130.00 per M.

FIGURING BOARD FEET
UNIT III

ANSWERS TO TEST

1. A piece of lumber one inch thick, twelve inches wide, and twelve inches long

2. $$\frac{\text{number of pieces} \times \text{thickness in inches} \times \text{width in inches} \times \text{length in feet}}{\text{divided by twelve}}$$

3. a. Figure number of board feet
   b. Multiply this number by the cost per thousand
   c. Mark off three decimal places

4. a. 4 board feet
   b. 20 board feet
   c. 16 board feet
   d. 80 board feet
   e. 210 board feet

5. a. $1.28
   b. $2.34

REVIEWING MEASUREMENTS
UNIT IV

UNIT OBJECTIVE

After completing this unit, the student should be able to measure objects using an appropriate scale, convert measures to equivalent units, add and subtract units of measure, and figure board feet and cost of lumber. This knowledge will be evidenced by scoring 85 percent on the unit test.

SPECIFIC OBJECTIVES

After completing this unit, the student should be able to

1. Measure objects using a proper scale.
2. Convert measures to equivalent units.
3. Add and subtract units of measure.
4. Solve two problems figuring board feet.
5. Solve two problems figuring the cost of lumber.

REVIEWING MEASUREMENTS
UNIT IV

SUGGESTED ACTIVITIES

I. Unit contents

A. Objective sheet

B. Suggested activities

C. Information sheets

D. Assignment Sheets

1. Assignment Sheet #1 — Measuring Lines and Objects
2. Assignment Sheet #2 — Converting Measures to Equivalent Units
3. Assignment Sheet #3 — Adding and Subtracting Measures
4. Assignment Sheet #4 — Figuring Board Feet
5. Assignment Sheet #5 — Calculating Cost of Lumber

E. Answers to assignment sheets

F. Test

G. Answers to test

II. Instructor's guide

A. Order (or obtain) materials to supplement unit

B. Provide students with copies of unit

C. Discuss unit and specific objectives

- Point out that this is a unit to review for a cumulative test on measurements.

D. Discuss information and assignment sheets

1. Review measuring objects using a proper scale; use Information Sheet, Section I.

   - Have students complete Assignment Sheet #1, and go over answers in class.

2. Review converting measures to equivalent units using Information sheet,

SUGGESTED ACTIVITIES

Section II.

- Have students complete Assignment Sheet #2, and go over answers in class.

3. Review adding and subtracting units of measure using Information Sheet, Section III.

   - Have students complete Assignment Sheet #3, and go over answers in class.

4. Review figuring board feet using Information Sheet, Section IV.

   - Have students complete Assignment Sheet #4, and go over answers in class.

5. Review figuring the cost of lumber using Information Sheet, Section V.

   - Have students complete Assignment Sheet #5, and go over answers in class.

E. Give test

F. Critique test and discuss in class

G. Reteach and retest as necessary

III. Unit references

Spann, Margarent. *Related Vocational Math*. Stillwater, Oklahoma: State Department of Vocational and Technical Education/Curriculum and Instructional Materials Center, 1972.

REVIEWING MEASUREMENTS
UNIT IV

INFORMATION SHEET

I. Procedures for measuring

A. Determine the size of the part by counting divisions in one inch

B. Count divisions from the last whole inch to the measurement, and write this fraction with the whole inch

C. Reduce the answer if possible

II. Converting measurements to equivalent units

A. Linear measure

1. 12 inches (in.) = 1 foot (ft.)
2. 36 in. = 1 yard (yd.)
3. 3 ft. = 1 yard
4. 16 ½ ft. = 1 rod (rd.)
5. 5 ½ yds. = 1 rd.
6. 5280 ft. = 1 mile (mi.)
7. 1760 yds. = 1 mi.
8. 320 rds. = 1 mi.

B. Liquid measure

1. 2 cups (c.) = 1 pint (pt.)
2. 2 pt. = 1 quart (qt.)
3. 4 qt. = 1 gallon (gal.)
4. 3 teaspoons (tsp.) = 1 tablespoon (Tbsp.)
5. 1 pt. = 16 fluid ounces (fl. oz.)

C. Dry measure

1. 2 pt. = 1 qt.

INFORMATION SHEET

2. 8 qt. = 1 peck (pk.)
3. 4 pk. = 1 bushel (bu.)
4. 3 tsp. = 1 Tbsp.

D. Weight measure

1. 16 oz. = 1 pound (lb.)
2. 2000 lb. = 1 ton (T.)

E. Time

1. 60 seconds (sec.) = 1 minute (min.)
2. 60 min. = 1 hour (hr.)
3. 24 hr. = 1 day (da.)
4. 7 da. = 1 week (wk.)
5. 30 da. = 1 month (mo.)
6. 52 wk. = 1 year (yr.)
7. 365 da. = 1 yr.
8. 366 da. = 1 leap year
9. 12 mo. = 1 yr.
10. 10 yr. = 1 decade
11. 100 yr. = 1 century
12. Time zones (Transparency 1)
    a. Central Standard Time (CST)

       (NOTE: This information is based on Central Standard Time.)

    b. Pacific Standard Time (PST) = CTS—2 hours
    c. Mountain Standard Time (MST) = CTS—1 hour
    d. Eastern Standard Time (EST) = CTS + 1 hour

INFORMATION SHEET

III. Adding and Subtracting Measures

A. Addition of measures

1. Add the columns separately

2. Express the answer in simplest terms

B. Subtraction of measures

1. Subtract the columns separately

2. Borrowing may be necessary

IV. Formula for board feet

$$\frac{\text{number of pieces} \times \text{thickness in inches} \times \text{width in inches} \times \text{length in feet}}{\text{divided by twelve}}$$

(NOTE: The answer will be incorrect if it is not labeled board feet.)

V. Figuring cost of lumber

A. Figure number of board feet

B. Multiply this number by the cost per thousand

C. Mark off three decimal places

REVIEWING MEASUREMENTS
UNIT IV

ASSIGNMENT SHEET #1 — MEASURING LINES AND OBJECTS

NAME _____ SCORE _____

1. Measure the following lines: use a 1/16 inch scale.

   a. _____

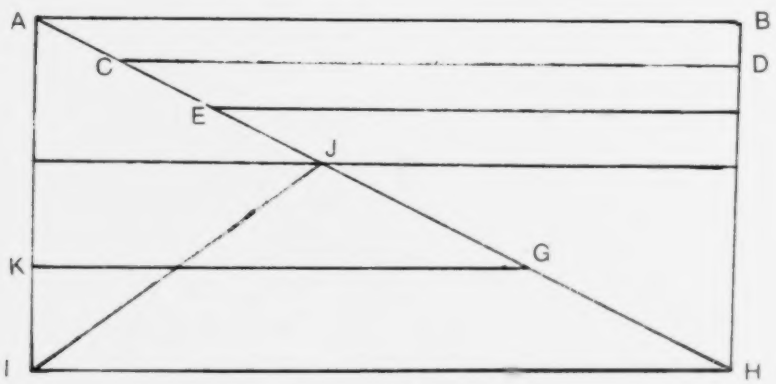
   b. _____

   c. _____

   d. _____

   e. _____

2. Using the same 1/16 inch scale, give the measurements of the following line segments.



a. A to B

b. C to D

c. E to F

d. A to H

e. I to J

f. E to G

g. K to G

h. A to G

i. A to C

j. C to G

REVIEWING MEASUREMENTS
UNIT IV

ASSIGNMENT SHEET #2 — CONVERTING MEASURES TO EQUIVALENT UNITS

NAME _____ SCORE _____

1. 2 cups = _____ fl. oz.
2. 32 fl. oz. = _____ pt
3. 4 pecks = _____ qt.
4. 6 pt. = _____ c.
5. 192 ounces = _____ lb.
6. 48 units = _____ doz.
7. 1600 ounces = _____ lb.
8. 24 pt. = _____ qt.
9. 28 qt. = _____ pk.
10. 12 qt. = _____ gal.
11. 12 tablespoons = _____ tsp.
12. 18 teaspoons = _____ Tbsp.
13. 32 pt. = _____
14. 43 ounces = _____ lb.
15. 16 gallons = _____ qt.
16. 15 pk. = _____ qt.
17. 19,200 lb. = _____ tons
18. 3 Tbsp. = _____ tsp.
19. 6720 pounds = _____ tons
20. 44 pt. = _____ qt.

REVIEWING MEASUREMENTS
UNIT IV

ASSIGNMENT SHEET #3 — ADDING AND SUBTRACTING MEASURES

NAME _____ SCORE _____

1. Add. Express the sum in the simplest form.

a. 4 lb. 8 oz.
3 lb. 9 oz.

b. 5 yr. 2 mo.
6 yr. 9 mo.
3 yr. 6 mo.

c. 2 hr. 45 min.
3 hr. 20 min.
2 hr. 10 min.

d. 2 gal. 3 qt.
3 gal. 2 qt.
1 gal. 1 qt.
4 gal. 2 qt.
5 gal. 3 qt.

e. 5 yr. 2 mo.
3 yr. 10 mo.
6 yr. 4 mo.
4 yr. 11 mo.
2 yr. 6 mo.

f. 2 gal. 3 qt.
1 gal. 2 qt.
3 gal. 3 qt.

g. 5 lb. 10 oz.
7 lb. 4 oz.
8 lb. 6 oz.

h. 4 wk. 4 da.
2 wk. 5 da.
3 wk. 2 da.

2. Subtract.

a. 18 yd. 1 ft.
12 yd. 2 ft.

b. 16 hr. 10 min.
8 hr. 20 min.

c. 14 hr. 45 min.
7 hr. 52 min.

d. 11 da. 7 hr.
6 da. 22 hr.

e. 19 ft. 2 in.
11 ft. 8 in.

f. 6 yd. 1 ft.
4 yd. 2 ft.

g. 4 lb. 10 oz.
2 lb. 12 oz.

h. 13 lb. 5 oz.
8 lb. 10 oz.

REVIEWING MEASUREMENTS
UNIT IV

ASSIGNMENT SHEET #4 — FIGURING BOARD FEET

NAME _____ SCORE _____

Directions: Calculate the total board feet in each of the problems listed below.

1. 4 – 1" × 6" × 12' =

2. 2 – 2" × 4" × 12' =

3. 10 – 2" × 6" × 10' =

4. 6 – 1" × 8" × 14' =

5. 8 – 1" × 4" × 13' =

6. 2 – 4" × 4" × 12' =

7. 2 – 2" × 4" × 20' =

8. 3 – 2" × 4" × 15' =

9. 4 – 1" × 8" × 20' =

10. 3 – 1" × 12" × 16' =

REVIEWING MEASUREMENTS
UNIT IV

ASSIGNMENT SHEET #5 — CALCULATING COST OF LUMBER

NAME _____ SCORE _____

Directions: Figure the cost of lumber in each of the problems listed below. Give your answer correct to the nearest cent. (M = 1,000 board feet.)

1. Ten boards 2" x 6" x 12' @ $120 per M.

2. Fifteen boards 1" x 8" x 14' @ $165 per M.

3. Three boards 2" x 12" x 12' @ $250 per M.

4. Six boards 2" x 4" x 20' @ $175 per M.

5. Twenty boards 4" x 4" x 12' @ $325 per M.

6. A contractor orders the following for framing a storage shed:

   40 studs 2" x 4" x 10'
   10 sills 1" x 4" x 20'
   5 plates 2" x 6" x 20'
   25 rafters 2" x 8" x 14'
   60 1" x 6" x 22' for sheathing

   a. Find the total number of board feet he ordered.

   b. If he paid $175 per M, how much did the order cost?

REVIEWING MEASURMENTS
UNIT IV

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #1

1. a. 1 3/4
   b. 3 1/2
   c. 2 1/8
   d. 3 1/4
   e. 2 15/16

2. a. 4 in.
   b. 3 7/16
   c. 2 5/8
   d. 4 1/2
   e. 2 1/16
   f. 1 3/4
   g. 2 15/16
   h. 3 1/4
   i. 5/8
   j. 2 5/8

Assignment Sheet #2

1. 16 fl. oz.
2. 2 pt.
3. 32 qt.
4. 12 c.
5. 12 lb.
6. 4 doz.
7. 100 lb.
8. 12 qt.
9. 3 pk. 4 qt.
10. 3 gal.
11. 36 tsp.
12. 6 Tbsp.
13. 16 qt.
14. 2 lb. 11 oz.
15. 64 qt.
16. 120 qt.
17. 9 T. 1200 lb.
18. 9 tsp.
19. 3 T. 720 lb.
20. 11 qt.

ANSWERS TO ASSIGNMENT SHEETS

Assignment Sheet #3

1. a. 8 lb. 1 oz.
   b. 15 yr. 5 mo.
   c. 8 hr. 15 min.
   d. 17 gal. 3 qt.
   e. 22 yr. 9 mo.
   f. 8 gal.
   g. 21 lb. 4 oz.
   h. 10 wk. 4 da.

2. a. 5 yd. 2 ft.
   b. 7 hr. 50 min.
   c. 6 hr. 53 min.
   d. 4 da. 9 hr.
   e. 7 ft. 6 in.
   f. 1 yd. 2 ft.
   g. 1 lb. 4 oz.
   h. 4 lb. 11 oz.

Assignment Sheet #4

1. 24 board feet
2. 16 board feet
3. 100 board feet
4. 56 board feet
5. 34.67 board feet
6. 32 board feet
7. 26.67 board feet
8. 30 board feet
9. 53.33 board feet
10. 48 board feet

Assignment Sheet #5

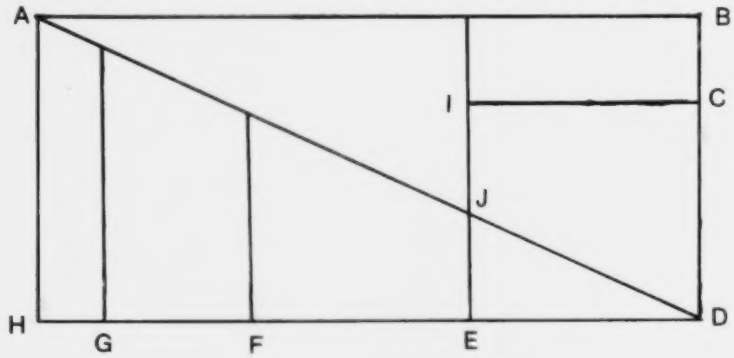
1. $144.00
2. $231.00
3. $60.00
4. $140.00
5. $1040.00
6. a. 1560.01 board feet
   b. $273.00

REVIEWING MEASUREMENTS
UNIT IV

TEST

NAME _____ SCORE _____

1. Use a 1/16 inch scale, give the measurements of the following line segments.



a. A to H

b. A to B

c. A to D

d. H to G

e. H to F

f. H to E

g. I to C

h. I to E

i. I to E

j. J to E

2. Give the indicated equivalents of the following measures.

a. 46 ft. = _____ yds.

b. 29 pt. = _____ qt.

c. 64 qt. = _____ pk.

d. 192 oz. = _____ lb.

e. 366 min. = _____ hr.

f. 56 da. = _____ wk.

g. 6,422 lb. = _____ T.

h. 96 oz. = _____ pt.

TEST

i. 180 in. = _____ yd.

j. 16 Tbsp. = _____ tsp.

k. 6 yd. = _____ ft.

l. 18 c. = _____ gal.

m. 16 pk. = _____ bu.

n. 3 T. = _____ lb.

o. 16 wk. = _____ da.

3. Add or subtract the following measures as indicated. Exress sums in lowest form.

a.
3 lb. 2 oz.
2 lb. 1 oz.
4 lb. 5 oz.
2 lb. 3 oz.
+ 5 lb. 2 oz.

b.
1 hr 10 min.
2 hr. 15 min.
3 hr. 20 min.
4. hr. 25 min.
+ 5 hr. 30 min.

c.
4 wk. 5 da.
1 wk. 3 da.
+ 2 wk. 6 da.

d.
4 lb. 10 oz.
– 2 lb. 12 oz.

e.
12 wk. 1 da.
– 6 wk. 6 da.

f.
8 wk.
– 6 wk. 5 da.

g.
6 gal. 2 qt. 1 pt.
4 gal. 3 qt. 1 pt.
+ 5 gal. 3 qt. 1 pt.

h.
3 hr. 43 min. 28 sec.
7 hr. 19 min. 53 sec.
+ 5 hr. 52 min. 49 sec.

i.
3 yd. 2 ft. 9 in.
1 yd. 1 ft. 8 in.
+ 3 yd. 2 ft. 6 in.

j.
11 hr. 18 min.
– 3 hr. 45 min.

k.
12 ft. 4 in.
– 3 ft. 9 in.

l.
11 yd.
– 3 yd. 1 ft.

TEST

4. Caculate the total board feet in each of the problems listed below.

   a. 20–2" × 6" × 18' = _____

   b. 12–1" × 8" × 16' = _____

5. Figure the cost of lumber in each of the problems listed below. Give your answer correct to the nearest cent. (M = 1,000 board feet.)

   a. 15–2" × 4" × 20' @ $145 = _____

   b. A contractor ordered the following for framing a horse barn:

      50 studs 2" × 4" × 10'
      15 sills 1" × 4" × 20'
      10 plates 2" × 6" × 20'
      30 rafters 2" × 8" × 14'
      65 1" × 6" × 22' for sheathing

   What was the total number of board feet he ordered? _____

   If he paid $185 per M, how much did the order cost? _____

REVIEWING MEASUREMENTS
UNIT IV

ANSWERS TO TEST

1. a. 1 3/4 in.
   b. 3 1/2 in.
   c. 3 15/16 in.
   d. 3/8 in.
   e. 1 3/16 in.
   f. 2 7/16 in.
   g. 1 1/16 in.
   h. 1 1/4 in.
   i. 3/4 in.
   j. 1/2 in.

2. a. 15 yd. 1 ft.
   b. 14 qt. 1 pt.
   c. 8 pk.
   d. 12 lb.
   e. 6 hr. 6 min.
   f. 8 wk.
   g. 3 T. 422 lb.
   h. 6 pt.
   i. 5 yd.
   j. 48 tsp.
   k. 18 ft.
   l. 1 gal. 1 pt.
   m. 4 bu.
   n. 6,000 lb.
   o. 112 da.

3. a. 16 lb. 13 oz.
   b. 16 hr. 40 min.
   c. 9 wk.
   d. 1 lb. 14 oz.
   e. 5 wk. 2 da.
   f. 1 wk. 2 da.
   g. 17 gal. 1 qt. 1 pt.
   h. 16 hr. 56 min. 10 sec.
   i. 9 yd. 11 in.
   j. 7 hr. 33 min.
   k. 8 ft. 7 in.
   l. 7 yd. 2 ft.

4. a. 360 board feet
   b. 128 board feet

ANSWERS TO TEST

5. a. $290.00
   b. 1908.00 board feet
      $353.04